

Council Chamber, Ann Arbor Mich.,
Feb. 4, 1918. Regular Session.

Meeting called to order by the
President. Present: Ald. Heusel, Sug-
den, Mayer, Huss, Andres, Hender-
son, Donnelly, Hauser, Freeman
Lutz, Pres. Reichert, 11. Absent: Ald.
Markey, Sherk, McGregor, Sink, 4.
Minutes of previous meeting ap-
proved.

Ann Arbor, Mich, Feb. 1, 1918.

To the Common Council of Ann
Arbor: Gentlemen—On account of
private reasons, I am forced to re-
sign as a member of the Park Board.
Thanking you for the honor of con-
firming my appointment 4 years ago,
by the former Mayor of Ann Arbor,
Doctor McKenzie. I am respectfully
yours,

J. F. Schaeberle.

Moved by Ald. Lutz, that communi-
cation be received, and resignation
accepted.

Adopted by the following vote:
Yeas, Heusel, Sugden, Mayer, Huss,
Andres, Henderson, Donnelly, Hau-
ser, Freeman, Lutz, Pres. Reichert,
11. Nays, none.

Washtenaw Gas Co., Ann Arbor,
Mich., Jan. 23, 1918.

To the Mayor and Common Coun-
cil of the City of Ann Arbor, Mich.:
Gentlemen—I beg to advise you that
the Washtenaw Gas Company names
Henry E. Riggs as its commissioner
on our application for revision of
rates in accordance with the ordin-
ance.

Yours Truly, H. W. Douglas.

Ordered on file.

Mr. I. Reynolds, City Clerk, Ann
Arbor, Mich.: Dear Sir—In con-
formity with the terms of my lease
with the city, I hereby give notice
that I exercise my option for re-
newal of said lease for the period of
another year. Yours very truly,

Clarence D. Lennon.

Ordered on file.

Petitions.

Petition of J. L. Smith, et al, for
storm water sewer on Gott st., from
Pearl st. to Miller ave., received and
referred to Sewer committee.

Committee Reports.

Finance Report.

Contingent Fund.

I. G. Reynolds, salary and clerk
hire\$166.68
Ross Granger, salary and clerk hire 108.33
Herbert W. Crippen, salary 125.00
Manley Osgood, salary 150.00
Alfred J. Paul, salary 125.00
Geo. H. Sandenburgh, salary 110.00
Frank B. DeVine, salary 83.33

Julius Lohrke, salary	80.00
R. M. Caughey, salary	70.00
M. E. Easterly, salary	60.00
John A. Wessinger, salary	50.00
Douglas Bycraft, salary	60.00
Ura G. Rickert, salary	50.00
Edwin Ganzhorn, salary	25.00
M. C. Ryan, salary half month.....	42.35

Total salaries for month of

January\$1,305.67

Fire Fund

Chas. Andrews, salary	\$ 60.50
Eugene Williams, salary	46.60
Ralph Edwards, salary	46.60
Henry McLaren, salary	44.20
Jacob Gwinner, salary	44.20
Arthur Clark, salary	42.35
Harley Wise, salary	42.35
Martin Noll, salary	42.35
Geo. Isbell, salary	42.35
Frank Markey, salary	42.35
Thomas Shamp, salary	42.35
Herman Kruse, salary	42.35
Emil Damm, salary	42.35
Mat. Heininger, salary	42.35
Benj. Zahn, salary	42.35
Raymond Gillespie, salary	36.30
Henry Maier, salary	36.30
Chas. Carroll, salary	27.85
Frank Kapp, salary	27.85

Fire Fund total salaries ½ month

January\$793.90

Police Fund

Thos. O'Brien, salary	\$ 55.00
Wm. Aprill, salary	42.35
Gustave Mayer	42.35
E. Blumhardt, salary	42.35
Marland Howard, salary	42.35
Emanuel Sadt, salary	42.35
Robert Clark	42.35
Henry Harden	39.30
Fred Sadt, salary	39.30
Clyde Bennett, salary	39.30
Jacob Andres, salary	39.30
Chas. Splitt, salary	39.30

Police fund total salaries one-half

month January\$505.60

Poor Fund.

J. H. Shadford, salary\$ 35.00

Cemetery Fund.

C. F. Miller, salary\$ 60.00

Park Fund.

Ray E. Bassett, salary\$125.00

Water Works Fund.

Geo. S. Vandawarker, salary	\$150.00
R. Spokes, salary	150.00
Dr. H. Emerson, salary	50.00
A. W. Cochran, salary	10.00
Geo. Mann, salary	20.00
John Lindenschmitt, salary	20.00
Wirt Cornwell, salary	20.00

Total monthly salaries\$420.00

Harry Willsher, salary	40.00
Leslie Bush, salary	40.00
Robert Rowe, salary	37.50
H. Willsher, Jr., salary	37.50
Henry Linde, salary	35.00
Clarence Brown, salary	32.50
John Volland, salary	16.20
A. E. Hawkes, salary	37.50
Cliff Shetterly, salary	50.00
Louise Malloy, salary	32.50

Russell Pryce, salary 25.00
 Total semi-monthly salary \$383.70

Water Works Fund total salaries \$803.70

Contingent Fund.

Engineer Dept.—
 W. Daniels, services.....\$ 6.60
 Ben DiPhilippi, services 12.78
 F. Leslie Feiner, services..... 27.00
 Elsa F. Lutz, services..... 31.34
 W. B. Russell, services..... 14.00
 Adam Schlecht, services..... 2.10
 F. R. Weeber, services..... 1.50

Total Engineer Dept.....\$95.32
 H. H. Wagoner, collecting garbage.\$500.00
 Mich. State Tel. Co., tolls......80
 John F. Blinn, M. D., veccinations,
 etc. 7.00
 League of Mich. Municipalities dues 15.00
 Clean Sweep Co., supplies..... 6.00
 Columbia Refining Co., supplies... 59.57
 Keuffel & Esser Co., supplies..... 31.10
 Pacific Flush Tank Co., supplies... 54.00
 The Ann Arbor Machine Co., supplies 11.75
 Eberbach & Son Co., supplies..... 30
 Jno. C. Fischer Co., supplies..... 5.95
 Mack & Co., supplies......90
 D. J. Malloy, supplies..... 2.00
 The Mayer-Schairer Co., supplies... 54.24
 The Times News Co., printing..... 209.40
 Sid W. Millard, printing..... 3.50
 A. C. Marquardt Garage, repairs
 auto 6.74
 Smith Tire Repair Co., repairs auto 17.00
 E. A. Wisdom, repairs......40
 Mich. Central R. R. Co., freight.... 2.82
 C. E. Godfrey, cartage, etc......90
 Manley Osgood, expenses paid..... 3.10
 I. G. Reynolds, express paid......50

Total supplies, etc.....\$992.97

Contingent Fund total, including
 salaries\$2,393.96

Fire Fund.

White Swan Laundry Co., laundry..\$ 7.88
 H. D. Edwards & Co., supplies..... 4.32
 Jno. C. Fiscer Co., supplies..... 2.99

Total supplies etc.....\$15.19

Fire Fund total including salaries \$809.09

Police Fund.

H. J. Abbott, P. M., postage.....\$ 7.42
 Standard Oil Co., gasoline..... 23.87
 Jno. C. Fischer Co., supplies..... 1.00
 The Mayer-Schairer Co., supplies... 1.15
 Schumacher Hardware Co., supplies. 2.00
 Stanger Furniture Co., supplies... 8.75
 Clyde C. Kerr, printing..... 2.00
 Harvey Stofflet, subscriptions..... 12.00
 D. F. Woodward, cleaning type-
 writer 1.00
 Henry S. Platt, auto repairs..... 25.27
 Ann Arbor Taxicab & Transfer Co.,
 taxi services 50

Total supplies etc.\$ 84.96

Police Fund total including sal-
 aries\$590.56

Poor Fund.

Mrs. Alice Woodbridge, Treas. Old
 Ladies Home\$ 12.00

Steve Brouselis, supplies..... 10.78
 Walker's Grocery, supplies..... 14.27
 J. E. Neithammer, supplies..... 9.31

Total supplies etc.\$ 46.36

Poor Fund total including salary \$ 81.36

Dog License Fund.

Joseph Wickcliffe, burial.....\$ 1.00

Water Fund.

Water Works Dept., fountain tap..\$ 13.50

Water Works Fund.

Schumacher Hardware Co., supplies \$ 9.20
 McMaster Car Supply Co., supplies 4.25
 Jno. C. Fischer Co., supplies..... 6.73
 Henry S. Platt, supplies 5.00
 The Ford Meter Box Co., supplies.. 1.90
 Electro Bleaching Gas Co., supplies 1.30
 Ann Arbor Taxicab & Transfer Co.,
 supplies 19.22
 H. J. Abbott, P. M., supplies..... 10.66
 C. E. Godfrey, cartage, etc..... 4.27
 John W. Herrst, unloading coal... 12.60
 Wm. H. Murray, insurance..... 25.40
 Detroit Edison Co., light and power 1051.81
 Water Works Dept., expenses..... 5.56

Total supplies etc.\$1,157.90

Harry Warren, labor.....\$ 52.50

Leo Maples, labor..... 27.50

J. Dean, labor..... 15.12

V. Quigley, labor..... 3.24

Total labor\$ 98.36

Water Works Fund total includ-
 ing salaries\$2,059.96

Street Fund.

W. Daniels, labor.....\$ 20.70
 Ben DiPhilippi, labor..... 13.13
 Emanuel Elasser, labor..... 12.00
 Jno. Hanselman, labor..... 28.80
 Emanuel Holzapfel, labor..... 9.60
 Sam. Kalmbach, labor..... 3.56
 James Mason, labor..... 35.30
 L. A. Mead, labor..... 11.10
 Dan Muldreed, labor..... 11.50
 Chas. Price, labor..... 12.00
 W. H. Romig, labor..... 3.13
 Adam Schlecht, labor..... 24.30
 J. O. Simison, labor..... 2.00
 Jacob Sindlinger, labor..... 12.00
 E. G. Steinbach, labor..... 26.40
 Fred'k Ullrich, labor..... 36.00
 Martin Walsh, labor..... 32.55
 Jno. Wendland, labor..... 25.75
 Geo. Zeifle labor..... 24.00
 Jas. Blades, team..... 7.00
 L. E. Davis, labor..... 10.20
 Chas. Flewelling, team..... 50.67
 Wm. Grayer, team..... 60.67
 Fred G. Hanselman, team..... 64.00
 Jno. E. Herrst, team..... 55.00
 Jno. W. Herrst, team..... 25.00
 Fred Horton, team..... 10.67
 Luick Bros., team..... 10.67
 John Miller, team..... 47.33
 Carl Rehberg, team..... 38.00
 E. R. Schaffer, team..... 20.67
 C. J. Snyder & Sons, team..... 46.00
 M. M. Wheelock, team..... 9.33
 Jos. Williams, team..... 2.50
 Claud Young, team..... 66.50
 Jacob Young, teah..... 42.67

Total labor\$910.70

City Garage, gasoline.....	\$ 1.15
Jno. C. Fischer Co., supplies.....	.90
Jno. J. Sauer, supplies.....	1.92
Schumacher Hardware Co., supplies	2.45
Hertler Bros., horse feed etc.....	53.20
John Volz, repairs.....	1.05
E. A. Wisdom, repairs.....	1.65
Henry S. Platt, repairs auto.....	22.44

Total supplies etc.....\$ 84.76

Street Fund total.....\$995.46

Bridge Cul. and C. W. Fund.

F. Leshe Feiner, services.....\$ 21.00

RECAPITULATION.

Contingent Fund	\$2,393.36
Fire	869.09
Police	590.56
Poor	81.36
Cemetery	60.00
Dog License	1.00
Water	13.50
Water Works	2,059.96
Park	125.00
Street	995.46
Bridge Culvert and C. W.	21.00

Total City Funds.....\$7,150.89

Ann Arbor, Mich., Feb. 4, 1918.

To the Finance Committee of the Common Council: Gentlemen—I have examined the foregoing accounts against the city of Ann Arbor, and I hereby certify that they are correct to the best of my knowledge.

ISAAC G. REYNOLDS,

City Clerk.

To the Honorable, the Common Council: Gentlemen—Your Finance committee has reviewed the foregoing report. Warrants for salaries were drawn Feb. 1, 1918. We recommend that same be approved and that warrants be ordered drawn for the foregoing accounts.

GEO. LUTZ, O. R. MAYER, JOHN McGREGOR, Finance committee.

Ald. Lutz moved the adoption of report, which was adopted by the following vote: Yeas, Ald. Heusel, Sugden, Mayer, Huss, Andres, Henderson, Donnelly, Hauser, Freeman, Lutz, Pres. Reichert, 11. Nays, none.

Ald. Lutz presented City Engineer's ninth estimate for construction of Broadway bridge, amount now due contractor, Mr. J. P. Rusche, \$9,115.20, which was approved by the Board of Public Works Jan. 29, 1918, after personal inspection.

Moved by Ald. Lutz, that the estimate be allowed, and the City Clerk be instructed to draw warrant for amount due, \$9,115.20.

Adopted by the following vote: Yeas, Ald. Heusel, Sugden, Mayer, Huss, Andres, Henderson, Donnelly, Hauser, Freeman, Lutz, Pres. Reichert, 11. Nays, none.

Ordinance Committee.

To the Honorable, the Common Council: Gentlemen—The Ordinance committee has had under considera-

tion the several communications from the State Food Administrator, addressed to the Mayor, in reference to the displaying of "Food Signs," and recommend that the Mayor, President of the Council, and City Engineer be authorized to place such signs in the city as they may deem fitting.

The committee has also had under consideration the petition from citizens, and the communication from the Mayor, relative to encroachments in the streets, and have decided to hold a public meeting of the committee, in the near future, for the purpose of giving all persons interested an opportunity to be heard.

Respectfully submitted: Charles A. Sink, C. C. Freeman, Sam C. Andres, Ordinance committee.

Ald. Freeman moved the adoption of report, which was adopted by the following vote. Yeas, Ald. Heusel, Sugden, Mayer, Huss, Andres, Henderson, Donnelly, Hauser, Freeman, Lutz, Pres. Reichert, 11. Nays, none.

Special Committee.

To the Honorable the Common Council: Your special "Wood Committee" begs to report that, in company with the Mayor and the President of the Council, they have had a meeting with the county fuel administrators.

It appears evident that the present coal shortage is due primarily to transportation difficulties, and that this situation is likely to become steadily worse. It therefore seems quite likely that there will be a similar, if not a still more serious fuel shortage next winter.

The shortage in coal must be overcome by the substitution of wood. Green wood produces about half as much heat as dry wood. In order to provide an adequate supply of dry wood, to meet the emergency next year, it should be cut at once, before the farmers' spring work begins, and allowed to dry during the summer.

Your committee, therefore, recommends that the President of the Council appoint a special committee, to act with a similar committee of Ann Arbor fuel dealers, to canvass the wood supply in the vicinity of Ann Arbor, and to ascertain complete information regarding its use by the city.

Respectfully submitted: Charles A. Sink, John Huss.

Ald. Huss moved the adoption of report, which was adopted by the following vote. Yeas, Ald. Heusel,

Sugden, Mayer, Huss, Andres, Henderson, Donnelly, Hauser, Freeman, Lutz, Pres. Reichert, 11. Nays, none.

President appointed Ald. Henderson, Andres and Huss as special committee.

Officers' Reports.

Ann Arbor, Mich., Feb. 4, 1918.

To the Honorable, the Common Council: Gentlemen—Notice is hereby given that at the next meeting of your Honorable Body, you will appoint a Poor Commissioner and a City Physician for the year next ensuing, the first Monday of March, 1918.

Respectfully submitted: Isaac G. Reynolds, City Clerk.

Ordered on file.

Ann Arbor, Mich., Jan. 24, 1918.

Ann Arbor Common Council: Gentlemen—I hereby make application to your Honorable Body for the position of City Physician for the following year.

It is understood, that, should I receive the appointment, I will accept it with the understanding that, should Dr. Ganzhorn return during the following year, and desire the position, it will be turned over to him.

Asking your favorable consideration, I am

Yours very truly, John F. Blinn.

Ordered on file.

City of Ann Arbor, Mich., Jan. 30, 1918.

To the Honorable Common Council, Ann Arbor, Mich.: Sirs—In accordance with your instruction of November 5th, 1917, I wish to advise that the water from the Steere Farm could, under present labor and material conditions, be supplied to the City of Ann Arbor for a sum estimated to be

One hundred and forty thousand dollars (\$140,000.00).

This estimate is made on a basis of present labor and material costs, and is subject to change or revision, with change in the present unstable conditions. If construction is delayed, it should be revised prior to financing same.

This installation for bringing the water from the Steere Farm to the City of Ann Arbor, would not be such as we have estimated in the past to cost between \$105,000.00 and \$125,000.00, but, under present conditions, we believe it to be the most economical and most advisable installation. The pumping station and collecting lines at the Steere Farm would be just such as the former estimate contemplated, but the force main from the Steere

Farm to the city would be one having a life of not less than 20 years, and probably considerably longer. Assuming that, at the end of twenty years, conditions will again be normal and cast iron pipe and labor will have returned to a stable and normal market, this force main can then be relaid with permanent cast iron pipe, and the combined cost of the present installation and the installation at the end of twenty years will not total the cost of a present cast iron pipe installation.

Under present conditions, the cost of installation previously estimated to cost from \$105,000 to \$125,000.00, would cost between \$220,000.00 and \$260,000.00.

This estimate is, sirs, very respectfully submitted: Manley Osgood.

Moved by Ald. Lutz, that report be accepted and placed on file. Adopted.

City Attorney Frank B. DeVine made oral report that the case of City of Ann Arbor vs. Tom Joyce and The Chicago Bonding and Surety Company, was now ready in circuit court, and he expected a settlement, and unless settlement was made the case would be tried in a week or ten days.

City Treasurer's Report.

CITY FUNDS—Treasurer's Report for Month Ending January 31, 1918.

Money Received—
Amount—

Contingent Fund.

Theater Licenses	\$ 211.50
Billard and Pool Licenses.....	86.00
Bowling Alley Licenses.....	69.00
Peddlers Licenses	5.00
Plumber Licenses .....	.50
Repair Sewer Connections	196.40
Sale of Hose	90.00
Rec'd from Chief Andrews, City Scales	13.90
Fees on Taxes Collected.....	445.02

Total\$ 1,117.32

Water Works Fund.

Rec'd from Mgr. Vandawarker..\$19,413.96

Poor Fund.

Sale of Coal \$ 8.00 |

Park Fund.

Due from W. F. Bird.....\$.20

Rent 10.00 |

Total\$ 10.20

Dog License Fund.

Licenses Sold \$ 8.25 |

Police Fund.

Rec'd from Chief O'Brien, City Fees \$ 39.05 |

Rec'd from Judge Doty, 4th Qr. Fines 260.00 |

Total\$ 299.05

Rejected Tax Fund.

Taxes Collected \$ 3.04 |

Bldg. Sidewalk Fund.

Walks Built by City.....\$ 42.76

Grading Edw. Street.
 Rec'd from Nelson Imus.....\$ 60.00
Street Fund.
 Auto Tax from County Treas.....\$ 5,000.00
 St. Repairs etc. 43.05
 Repaving Streets 8.01
 Repairing Pavements 6.20

Total\$ 5,057.26

Delinquent Tax Fund.
 Rec'd from County Treas.....\$ 3,982.24

Steere Farm.
 Rent\$ 400.00

Uncollected City Tax Fund
 Taxes Collected\$ 2,952.56

Total\$33,354.64
 Warrants Paid 26,810.96

Balance\$ 6,543.68
 On hand January 1, 1918..... 44,173.84

On hand, Feb. 1, 1918.....\$50,717.52
 Condition of City Funds on the First Day
 of February, 1918.

Warrants Paid—
 Amount—

Contingent Fund\$ 3,116.57
 City Cemetery Fund 91.50
 Dog License Fund 50
 Fire Department Fund 1,848.27
 Poor Fund 86.03
 Police Fund 1,144.70
 Street Fund 3,262.09
 Water Fund 5,522.97
 Park Fund 201.83
 Street Light Fund 1,666.66
 Bridge Culvert and Crosswalk
 Fund 90.90
 Water Works Fund 6,616.79
 Broadway Bridge 2,762.15
 Repaving Huron St. 400.00

Total\$26,810.96

On Hand—

Contingent Fund\$14,114.42
 City Cemetery Fund 1,110.77
 Dog License Fund 394.21
 State Dog Tax Fund 100.00
 Fire Dept. Fund 5,570.48
 Poor Fund 833.23
 Police Fund 7,885.49
 Street Fund 5,618.38
 Water Fund 158.38
 Park Fund 988.15
 Street Light Fund 4,911.70
 Sidewalk Fund 83.65
 Bridge Culvert and Crosswalk
 Fund 2,418.76
 Rejected Tax Fund 226.74
 Sprinkling District No. 15..... 27.11
 Entertainment 74.69
 Broadway Bridge 19,264.45
 Steere Farm 1,314.72
 St. Equipment and Barn 1,039.20

Total\$66,134.45
 Overdrawn 15,416.93

On Hand February 1, 1918.....\$50,717.52

Overdrawn—

Sidewalk Building Fund\$ 608.76
 Uncollected City Tax Fund 558.90
 Delinquent Tax Fund 1,205.56
 Sprinkling District No. 11..... 192.74
 Sprinkling District No. 12..... 43.44

Sprinkling District No. 13..... 66.86
 Sprinkling District No. 14..... 38.59
 Water Works Fund 11,770.58
 Grading Edward Street 513.76
 Repaving Liberty Street..... 66.22
 Repaving Huron Street 351.52

Total\$15,416.93

Warrant: Outstanding—

Contingent Fund\$ 34.70
 Street Fund 28.59
 Park Fund 19.82
 Sidewalk Fund 26.41
 Water Works Fund 1,962.12

Total\$ 2,071.64

**CITY FUNDS—Treasurer's Report for
 Month Ending January, 1918.**

Money Received—
 Amount—

State Tax Fund.
 Taxes Collected\$ 7,381.41

County Tax Fund.
 Taxes Collected\$ 9,964.90

School Tax Fund.
 Taxes Collected\$16,608.16

Total\$33,954.47
 Warrants Paid 170,000.00

Overdrawn\$136,045.53
 On hand January 1, 1918..... 206,222.14

On hand February 1, 1918\$70,176.61

Condition of City Funds on the First Day
 of February, 1918.

Warrants Paid—
 Amount—

State Tax Fund\$40,000.00
 County Tax Fund 60,000.00
 School Tax Fund 70,000.00

Total\$170,000.00

On Hand—

State Tax Fund\$14,821.00
 County Tax Fund 14,008.36
 School Tax Fund 41,347.25

On Hand February 1, 1918.....\$70,176.61

**SEWER FUNDS—Treasurer's Report for
 Month Ending January, 1918.**

Money Received—
 Amount—

Tax Account Sewer District No.
 51—Taxes Collected\$ 47.00

Tax Account Sewer District No.
 53—Taxes Collected 11.59

Tax Account Sewer District No.
 55—Taxes Collected 22.99

Tax Account Sewer District No.
 56—Taxes Collected 25.56

Tax Account Sewer District No.
 60—Taxes Collected 24.96

Tax Account Sewer District No.
 61—Taxes Collected 26.20

Tax Account Sewer District No.
 63—Taxes Collected 16.50

Tax Account Sewer District No.
 64—Taxes Collected 8.16

Tax Account Sewer District No.
 68—Taxes Collected 7.44

Tax Account Sewer District No.
 77—Taxes Collected 17.08

Total\$ 207.78

Warrants Paid 252.47

Overdrawn\$ 44.69
Overdrawn on January 1, 1918... 6,503.36

Overdrawn on February 1, 1918...\$ 6,548.05
Condition of Sewer Funds on the First Day
of February, 1918.

Warrants Paid—
Amount—

Labor Acc't Sewer Dist. No. 70..\$ 28.54
Labor Acc't Sewer Dist. No. 73.. 125.06
Labor Acc't Sewer Dist. No. 78.. 40.04
Labor Acc't Sewer Dist. No. 79.. 58.08
Labor Acc't Sewer Dist. No. 82.. .75

Total\$ 252.47

On Hand—

Labor Acc't Sewer Dist. No. 49..\$ 43.18
Labor Acc't Sewer Dist. No. 51.. 301.12
Labor Acc't Sewer Dist. No. 52.. 55.28
Labor Acc't Sewer Dist. No. 53.. 889.15
Labor Acc't Sewer Dist. No. 56.. 91.26
Labor Acc't Sewer Dist. No. 63.. 570.69
Labor Acc't Sewer Dist. No. 68.. 477.27
Labor Acc't Sewer Dist. No. 69.. 107.98
Labor Acc't Sewer Dist. No. 71.. 70.29
Labor Acc't Sewer Dist. No. 72.. 3,874.69
Labor Acc't Sewer Dist. No. 75.. 369.63
Labor Acc't Sewer Dist. No. 76.. 161.91
Labor Acc't Sewer Dist. No. 77.. 102.49
Labor Acc't Sewer Dist. No. 78.. 27.51
Labor Acc't Sewer Dist. No. 80.. 271.82
Labor Acc't Sewer Dist. No. 82.. 741.43
Labor Acc't Sewer Dist. No. 84.. 1,624.82
Tax Acc't Sewer Dist. No. 27.... 13.06
Tax Acc't Sewer Dist. No. 35.... 276.47
Tax Acc't Sewer Dist. No. 41.... 132.55
Tax Acc't Sewer Dist. No. 42.... 223.79
Tax Acc't Sewer Dist. No. 44.... 211.89
Tax Acc't Sewer Dist. No. 45.... 250.62
Tax Acc't Sewer Dist. No. 46.... 541.14
Tax Acc't Sewer Dist. No. 47.... 541.35
Tax Acc't Sewer Dist. No. 48.... 163.82
Tax Acc't Sewer Dist. No. 54.... 393.85
Tax Acc't Sewer Dist. No. 57.... 120.50
Tax Acc't Sewer Dist. No. 58.... 202.66
Tax Acc't Sewer Dist. No. 59.... 40.11
Tax Acc't Sewer Dist. No. 62.... 149.52
Tax Acc't Sewer Dist. No. 66.... 245.56
Tax Acc't Sewer Dist. No. 69.... 35.57
Tax Acc't Sewer Dist. No. 71.... 66.00
Tax Acc't Sewer Dist. No. 73.... 409.06
Tax Acc't Sewer Dist. No. 74.... 25.73
Tax Acc't Sewer Dist. No. 75.... 528.12
Tax Acc't Sewer Dist. No. 78.... 140.63
Tax Acc't Sewer Dist. No. 79.... 277.39
Tax Acc't Sewer Dist. No. 80.... 182.04

Total\$14,951.35
Overdrawn 21,500.00

Overdrawn Feb. 1, 1918\$ 6,548.05
Overdrawn—

Labor Acc't Sewer Dist. No. 42..\$ 85.03
Labor Acc't Sewer Dist. No. 43.. 80.63
Labor Acc't Sewer Dist. No. 44.. 102.12
Labor Acc't Sewer Dist. No. 45.. 123.32
Labor Acc't Sewer Dist. No. 46.. 269.25
Labor Acc't Sewer Dist. No. 47.. 266.35
Labor Acc't Sewer Dist. No. 48.. 103.63
Labor Acc't Sewer Dist. No. 54.. 270.88
Labor Acc't Sewer Dist. No. 55.. 423.08
Labor Acc't Sewer Dist. No. 57.. 247.37
Labor Acc't Sewer Dist. No. 58.. 166.85
Labor Acc't Sewer Dist. No. 59.. 164.92

Labor Acc't Sewer Dist. No. 60.. 68.57
Labor Acc't Sewer Dist. No. 61.. 733.82
Labor Acc't Sewer Dist. No. 62.. 150.60
Labor Acc't Sewer Dist. No. 70.. 165.74
Labor Acc't Sewer Dist. No. 73.. 156.75
Labor Acc't Sewer Dist. No. 74.. 28.83
Labor Acc't Sewer Dist. No. 79.. 27.21
Labor Acc't Sewer Dist. No. 81.. 15.60
Labor Acc't Sewer Dist. No. 83.. 311.90
Labor Acc't Sewer Dist. No. 85.. 127.49
Tax Acc't Sewer Dist. No. 32.... 884.44
Tax Acc't Sewer Dist. No. 34.... 1,219.25
Tax Acc't Sewer Dist. No. 36.... 225.39
Tax Acc't Sewer Dist. No. 37.... 112.98
Tax Acc't Sewer Dist. No. 38.... 137.94
Tax Acc't Sewer Dist. No. 39.... 471.93
Tax Acc't Sewer Dist. No. 40.... 477.82
Tax Acc't Sewer Dist. No. 49.... 35.99
Tax Acc't Sewer Dist. No. 50.... 423.24
Tax Acc't Sewer Dist. No. 51.... 485.54
Tax Acc't Sewer Dist. No. 52.... 80.88
Tax Acc't Sewer Dist. No. 53.... 872.40
Tax Acc't Sewer Dist. No. 55.... 111.04
Tax Acc't Sewer Dist. No. 56.... 2,465.13
Tax Acc't Sewer Dist. No. 60.... 313.45
Tax Acc't Sewer Dist. No. 61.... 1,492.71
Tax Acc't Sewer Dist. No. 63.... 772.49
Tax Acc't Sewer Dist. No. 64.... 41.69
Tax Acc't Sewer Dist. No. 65.... 51.35
Tax Acc't Sewer Dist. No. 67.... 114.54
Tax Acc't Sewer Dist. No. 68.... 165.39
Tax Acc't Sewer Dist. No. 70.... 74.12
Tax Acc't Sewer Dist. No. 72.... 6,174.52
Tax Acc't Sewer Dist. No. 76.... 32.39
Tax Acc't Sewer Dist. No. 77.... 167.77
Tax Acc't Sewer Dist. No. 81.... 5.67

Total\$21,500.00

Warrants Outstanding—

Labor Acc't Sewer Dist. No. 82..\$ 1.50
PAVING FUNDS—Treasurer's Report for
Month Ending January, 1918.

Money Received—

Amount—

Tax Account Paving District No.
12—Taxes Collected\$ 19.13
Tax Account Paving District No.
14—Taxes Collected 20.85
Tax Account Paving District No.
16—Taxes Collected 34.92
Tax Account Paving District No.
17—Taxes Collected 9.92
Tax Account Paving District No.
18—Taxes Collected 19.96
Tax Account Paving District No.
19—Taxes Collected 15.07
Tax Account Paving District No.
20—Taxes Collected 2.28
Tax Account Paving District No.
21—Taxes Collected 7.70
Tax Account Paving District No.
25—Taxes Collected 9.68
Tax Account Paving District No.
27—Taxes Collected 6.37
Tax Account Paving District No.
28—Taxes Collected 12.73
Tax Account Paving District No.
29—Taxes Collected 134.06
Tax Account Paving District No.
30—Taxes Collected 3.98
Tax Account Paving District No.
34—Taxes Collected 11.35
Tax Account Paving District No.
36—Taxes Collected 92.96

Total\$ 400.96

Warrants Paid	20.00
Balance	\$ 380.96
On Hand January 1, 1918.....	11,976.20
On Hand February 1, 1918.....	\$12,357.16
Condition of Paving Funds on the First Day of February, 1918.	
Warrants Paid— Amount—	
Tax Acc't Pavement, No. 34.....	\$ 20.00

Total	\$ 20.00
On Hand—	
Labor Acc't Pavement, No. 20....	\$ 254.34
Labor Acc't Pavement, No. 32....	243.61
Labor Acc't Pavement, No. 36....	1,854.01
Tax Acc't Pavement, No. 11.....	789.70
Tax Acc't Pavement, No. 13.....	185.14
Tax Acc't Pavement, No. 17.....	126.84
Tax Acc't Pavement, No. 18.....	440.46
Tax Acc't Pavement, No. 19.....	460.65
Tax Acc't Pavement, No. 22.....	288.58
Tax Acc't Pavement, No. 23.....	1,017.49
Tax Acc't Pavement, No. 24.....	42.14
Tax Acc't Pavement, No. 27.....	461.84
Tax Acc't Pavement, No. 28.....	2,866.28
Tax Acc't Pavement, No. 29.....	1,300.01
Tax Acc't Pavement, No. 30.....	173.52
Tax Acc't Pavement, No. 32.....	248.13
Tax Acc't Pavement, No. 33.....	413.09
Tax Acc't Pavement, No. 34.....	3,332.06
Tax Acc't Pavement, No. 36.....	2,877.88

Total	\$17,375.77
Overdrawn	5,018.61

On Hand February 1, 1918.....	\$12,357.16
Overdrawn—	
Labor Acc't Pavement, No. 30....	\$ 265.89
Labor Acc't Pavement, No. 31....	126.15
Labor Acc't Pavement, No. 35....	267.24
Tax Acc't Pavement, No. 10.....	3,098.72
Tax Acc't Pavement, No. 12.....	183.40
Tax Acc't Pavement, No. 14.....	83.68
Tax Acc't Pavement, No. 15.....	34.85
Tax Acc't Pavement, No. 16.....	294.01
Tax Acc't Pavement, No. 20.....	396.47
Tax Acc't Pavement, No. 21.....	19.97
Tax Acc't Pavement, No. 25.....	174.92
Tax Acc't Pavement, No. 26.....	1.73
Tax Acc't Pavement, No. 35.....	71.58

Total	\$ 5,018.61
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RECAPITULATION.

City Funds on hand	\$ 50,717.52
State Funds	14,821.00
County Funds	14,008.36
School Funds	41,347.25
Pavement Funds	12,357.16

Total	\$133,251.29
Sewer Funds overdrawn	6,548.05

On hand February 1st, 1918	\$126,703.24
Bank balance	\$122,549.77
Cash on hand	4,153.47

Total ..	\$126,703.24
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Respectfully submitted: ROSS GRANGER,
City Treasurer.

Ann Arbor Savings Bank, Ann Arbor,
Mich.

To the Honorable Common Council of
the City of Ann Arbor: Gentlemen—This
is to certify that there was on deposit in

the Ann Arbor Savings Bank to the credit
of Ross Granger, City Treasurer, the sum
of One Hundred Twenty Two Thousand
Five Hundred Forty Nine and 77-100
(\$122,549.77) Dollars at the close of busi-
ness January 31st, 1918.

WILLIAM L. WALZ, Cashier.

Ann Arbor, Michigan, February 1st, 1918.
Annual Report Board of Public Works.
City of Ann Arbor, Michigan, January
14, 1918.

To the Board of Public Works, Ann
Arbor, Michigan: Sirs—I submit the
following report of work done, under
my direction, in your Engineer's De-
partment, during the year ending De-
cember 31, 1917. It is,
Very respectfully submitted: Manley
Osgood.

PAVING.

**Catherine Street and Miller Avenue,
District No. 36:** This pavement was
planned, contracted for an completed
during 1916 and reported upon in the
annual report for that year, but it
was accepted subject to a written
agreement that several minor repairs
should be made by the contractors,
Messrs. Barnes & O'Neil, or the cost
of same deducted from amounts there-
after due them. These minor repairs
were not completed at the time the
agreement expired and they were done
by the City at a cost of \$6.17. There
were a considerable number of brick
remaining from this pavement on
Catherine st. and Miller Ave., which
were purchased from the contractors,
Barnes & O'Neil, for use on repaving
E. Huron St. from Fourth Ave. to
Fifth Ave. When payment was made
for this brick this \$6.17 was deducted
from the payment.

South University Avenue: From
State St. to Washtenaw Ave. You
were instructed by the Common Coun-
cil to prepare plans and specifications
for paving So. University Ave. from
State St. to Washtenaw Ave. It de-
veloped, however, that the district pe-
titioned for was S. University Ave.
from State St. to Oxford Road and E.
University from N. University Ave.
to Hill St. Under the ruling of the
City Attorney a district of this kind
could not be divided and made into two
separate districts. He also held that
it would be necessary to have a ma-
jority foot frontage sign for such a
pavement exclusive of the University
of Michigan frontage. For these rea-
sons it was informally decided by
members of the Council that no new
paving would be done during the year
of 1917 and the amount available for

pavements this year left to accumulate so that a greater amount may be available during 1918 or whenever it is deemed advisable to proceed with pavement construction. Only the preliminary profile for the pavement on S. University from State St. to Wash-tenaw Ave. was run at a total cost of \$15.06. The records of this work are available so that whenever it is decided to pave this street they may be used.

Alley in Block 2 S., Range 3 E.: Later, on August 20th, 1917, you were instructed by the Common Council to prepare plans and specifications for paving Alley in Block 2 S., Range 3 E. (Running from Liberty St. to Washington St. and between Main St. and Ashley St.) These plans and specifications were prepared by us and taken directly to the Common Council, approved and sent to you in October with instructions to advertise for bids. On account of the lateness of the season, however, it was decided to postpone any work of this kind until next year. The total cost for preparing plans, specifications, etc. was \$7.98.

Repaving East Huron Street: You were instructed to prepare plans and specifications for the repaving of that part of Huron St. between the west line of Fourth Ave. and the east line of Fifth Ave., with vitrified brick, on concrete foundation, pavement. This replaced one block of asphaltic-block-on-sand pavement laid in 1900. Plans and specifications with estimate of cost were submitted to the Council on June 18th and at the Council meeting on July 2nd you recommended that the contract be awarded to J. C. Stewart. This recommendation was afterwards concurred in and Mr. Stewart was awarded the contract, the sum of \$7,500.00 having been appropriated in the annual budget for that purpose. The work has progressed on the pavement so that it is now open to traffic but some small work remains to be done by the contractor for which ten per cent of the cost of the pavement is still being retained. It is almost impossible to complete this work until better weather conditions prevail, so that the balance for paving this street will probably not be paid before spring. The total cost of this work to date has been \$7,298.11 distributed as follows:

Engineering	\$ 77.41
Inspection	122.72
Payments to Contractor.....	3,703.13

Cost of brick on site of im-	
improvement	2,464.59
Cement furnished by City..	930.26

Total	\$7,298.11
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Payment which will be due Mr. Stewart, the Contractor, upon the proper completion of the work remaining is \$514.82, making a total cost of \$7,812.93. The cost of engineering amounts to one per cent of the cost of construction or \$.029 per square yard and the cost for inspection amounts to 1.6 per cent of the cost of construction or \$.046 per square yard. The cost for engineering and inspection are very remarkably low. The unit costs are as follows:

Cost per square yard completed..	\$2.93
Cost per square yard for paving only, not including curbing or grading	2.65

These unit costs are based on the total area of 2,666 square yards.

The contractor's unit prices were as follows:

Per square yard for vitrified brick pavement including mortar cushion and grouted brick surface, brick furnished by City	\$.55
Per lineal foot stone curbing reset .....	.50
Per cu. yard for concrete foundation	7.00
Per lineal foot for stone headers..	.65
Per square yard for old paving removed .....	.16
Per cubic yard for excavation..	.65

However after bids were submitted, an agreement was made with Mr. Stewart whereby the City was to furnish him cement at the actual cost to the City, which was 48c per barrel cheaper than Mr. Stewart could purchase it, and Mr. Stewart allowed the City a reduction, based on the difference in the cost to him of cement, on the concrete foundation. Under this agreement Mr. Stewart received \$6.52 per cubic yard for concrete foundation.

The City purchased the brick for this work and delivered them on the site of the improvement. From Barnes & O'Neil were purchased 36,250 brick, which remained on Miller Ave. at the price of \$21.50 per thousand. From the Metropolitan Paving Brick Co. were purchased the balance of the brick necessary at \$27.50 per thousand. The total cost of hauling brick from Miller Ave. in the case of

those purchased from Barnes & O'Neil and from the cars in the case of those purchased from the Metropolitan Paving Brick Co. was \$323.23.

The contractor, Mr. J. C. Stewart, is under bond in the sum of one-third the amount of his bid, to maintain this pavement for a period of five years and to make all necessary repairs, at the end of the five year period, to put this pavement in practically as good condition as at the time of the completion of the work.

This pavement is of the highest grade vitrified brick surface laid on concrete foundation five inches thick, mixed in the proportion of one part cement to two and one-half parts of sand and five parts of gravel. Over the top of the concrete foundation a layer of dry sand mortar mixed in the proportion of one part cement to three parts of sand was spread. The brick was laid on this mortar cushion and thoroughly rolled to even bearing, after which the mortar cushion was wet before the application of the grout which filled the spaces between the brick. The space between the brick are filled with sand grout mixed in the proportion of one part cement to one part of fine sand. This method of construction eliminates the sand cushion which was formerly placed between the concrete foundation and brick wearing surface, putting in its place the mortar cushion which, in the course of construction, is hardened and made immovable. It has been the experience of other cities that this method of construction eliminates a great amount of troubles formerly experienced with brick pavements.

It was impossible to obtain washed sand and gravel for paving work or any other work during the past year and on this pavement Mr. Stewart was allowed to use screened sand and gravel, taken from a gravel pit about three miles from the City on Pontiac St., which was carefully analyzed from time to time to make sure that it contained no dirt or other foreign matter which would be injurious to the concrete.

Maintenance: All of the repairs or maintenance of pavements with the exception of repaving East Huron St. from Fourth Ave. to Fifth Ave. was taken care of by the Street Department and is reported upon by them. In 1914, again in 1916, and again this year it has been necessary to replace a block of pavement laid many years

ago with new paving. The expense of such reconstruction will increase rapidly in the future until the annual cost for same becomes quite large. The expense in the instances already cited has been borne by the City at large and taken out of the general tax levy for that year. This maintenance, resurfacing and reconstruction is a matter for careful consideration and study and each particular case should be investigated in order that the most economical method, considering traffic and location, may be adopted. This will undoubtedly save a part of this expensive burden or at least obtain the greatest return for the amount spent.

On Division St. and Jefferson St. it is noted that more holes have developed north of Lawrence St. in the asphaltic wearing surface and cracks are appearing at intervals along the street. These will need more attention during the coming season. The contractors are under bond by the Chicago Bonding and Surety Company to maintain these pavements for a period of five years and to leave them at five years after date of acceptance in condition practically as good as when accepted. Any repairs made in that time will necessarily be paid by either the contractor or Bonding Company. Some repairs have already been made by the Globe Construction Co. employed by the Chicago Bonding and Surety Company as reported upon in my report for 1916.

General: Again this year the City of Ann Arbor built the only pavement constructed in strict accordance with standard engineering practice. Great care has been exercised to see that all materials used were strictly first class and that the pavement was properly constructed from this material. The paving work was awarded to contract and for that reason prevailing prices for work of this kind must be given rather than prices actually paid by the contractor. These prices are as follows:

Cement, per bbl. net, allowance deducted for sacks returned.	
(Price under city contract was \$1.92)	\$ 2.40
Brick, per M., F. O. B. Ann Arbor	27.50
Screened sand, per load of about one and one-third cubic yards delivered on street	1.50
Screened gravel, per load of about one and one-third cu-	

bic yards delivered on street	1.75
Water, per 100 cubic feet or completed concrete .....	.25
Day labor, per hour .....	.35
Teams per 9 hour day	6.00

Statement of Kinds of Pavement in Ann Arbor:

Brick on concrete, square yards	39,890
Brick on sand, square yards....	1,589
Asphaltic block on sand, square yards	28,202
Bitulithic, square yards	7,519
Asphaltic concrete, square yards	19,297
Reinforced concrete, square yards	5,358

101,855

Ann Arbor Tarred Concrete; square yard:

Laid in 1909	1,883
Laid in 1910	16,557
Laid in 1911	64,089
Laid in 1912	11,537
Laid in 1913	33,463
Laid in 1914	11,832

139,361

Total241,216

Summary: The original cost of pavements constructed to date, exclusive of mecadamizing Detroit street and So. University Ave. is \$391,023.39 and the total cost of repaving done to date is \$17,490.53.

GRADING, OPENING AND MAINTAINING STREETS.

Seventh Street, South of Madison St.: For many years that part of Seventh St. south from Madison St. existed as a street only thirty-three feet wide. Through the efforts of the Second Ward aldermen a proposition was made by the property owners along the east side of this street to give the additional thirty-three feet, in order to make the street the full sixty-six feet wide, if the City would do the necessary grading. Accordingly your Street Commissioner was instructed to proceed with the grading which was commenced last winter and proceeded south nearly to the section line between Sections 29 and 32. There remained a considerable yardage of earth to be moved south of the section line and when Mr. Allmendinger had W. E. Tench grading the streets in the Allmendinger Heights Addition, you recommended to the Council the awarding of the contract to them for the completion of the work on Seventh St. which recommendation was adopted and car-

ried out. The Tench Co. were paid a unit price of 55c per cubic yard for this grading, plus a lump sum of \$75 for the removal of stumps, which amounted in all to \$2,566.50. What earth from the cuts was not needed for the fills on the street was disposed of on adjacent low property.

Hoover Avenue, From Division St. to Greene St. (Formerly Fourth Ave.):

This street was formerly Edwin St. from Division St. to the Ann Arbor Railroad and Philip St. from Fourth Ave. east to the Hoover Steel Ball Company's plant but during the year the name was changed as above. Realizing the need for an opening across the Ann Arbor Railroad connecting the eastern and western part of the City south of Hill St. and at the Hoover Steel Ball Company's plant negotiations were entered into with the Ann Arbor Railroad Co. for such an opening. They at first protested against making such an opening because of its location adjacent to their switching yards, but an agreement was finally entered into under which the City was to pay the entire first cost of such opening, and after it was once opened the Railroad Co. were to maintain the crossing and pay all expenses for watchman needed. The original cost of crossing, tower and gates, as constructed by the Ann Arbor Railroad Co., and for which payment was made to the Ann Arbor Railroad Co., was \$2,144.23. The grading and building of sidewalks was done by the Street Commissioner and will be reported upon by him in his annual report. By making this arrangement with the Ann Arbor Railroad Co. at the time it was made rather than delaying the matter by court proceedings, the City was enabled to get filling material from the property of the Hoover Steel Ball Co. which resulted in a saving in the cost of grading at least equal to the amount paid the Ann Arbor Railroad Co. for construction of crossing, gates, tower, etc., which cost of construction in court proceedings would probably have been assessed against the City of Ann Arbor. The street is now completed and quite heavily travelled.

North Main Street: In order to make possible the building of sidewalks on North Main St. from the Ann Arbor Railroad to the City limits you recommended that this street be properly graded, using the material obtained from the west side of the

street for filling along the east side of the street and that the work be done this year in order that the filling along the east side of the street might settle before the construction of the walk during the coming season. The entire work of grading was done by the Street Department and will be reported upon by the Street Commissioner in his report. In this department the necessary profiles were run, grade established and stakes set for this grade.

It is into this street that the building of the Ann Arbor Scrap Iron and Metal Co. extends which encroachment is a matter referred to the City Attorney upon which he has already started suit. Let us hope that the matter will be cleared up for the proper construction of sidewalks early in the season as this street is a very heavily travelled thoroughfare, both for pedestrians and vehicle traffic.

Street Lines And Grades: The total cost for all work done in connection with running profiles, establishing grades, setting stakes, care of street monuments or markers and etc., including Seventh St., Hoover Ave. and North Main St. above referred to, has been, during the past year \$467.33.

Street Signs: After the ordinance was passed on August 20, 1917, changing the names of certain streets, you were instructed to secure and put in place as soon as possible correct street signs for the newly named streets and for such other streets as may be without signs. A list of signs needed was prepared by this department, the cost for same being included in the above named \$467.33, bids were received and a contract made for the signs needed. These signs have not as yet been delivered but as soon as they are they will be put in place as directed.

Street Maintenance: For the proper maintenance of the graveled streets the most needed article is a road roller with scarifier attachment. This would make possible work which could be done in no other way and which would greatly improve conditions of all of our graveled roadways. This fact was recognized by your Board and by the Council and considerable effort was made by your body to obtain such a roller for the City's use this fall but, on account of the lack of funds for the purchase and the refusal of the Austin-Western Co. to accept the proposition offered by their representative, the matter was

delayed until it was too late for proper work with such a machine and the matter was therefore laid over until the coming spring when it is expected that a sufficient amount will be provided in the City's budget for the purchase of such machinery. The expense in this department in connection with receiving bids for this roller, and the inspection of rollers at work in nearby localities was \$31.96.

A heavy road grader was purchased from the Austin-Western Co. at a cost of \$286.00 which has been used during the past year to good advantage by the Street Department and which will be needed in connection with work to be done by the above mentioned roller with scarifier when they are provided.

Street Cleaning: On August 29th, 1916, the people of the City voted to raise \$6,000.00 to be spent for a Motor Pickup Sweeper and other street equipment together with the barn at the City Yards. This Motor Pickup Sweeper was purchased during the year 1917 for \$4,000.00. Its operation has been very efficiently handled by the Street Commissioner and in such way that the returns received from same show that the streets of the City have been cleaned two or three times as often as in former years at a total saving of approximately \$500.00 over the cost of last year. The duration of the season was a few days longer this year than last year. The cost per thousand square yards of pavement swept was reduced from 35c, under the former method with horse drawn sprinkler and rotary broom, to about 21c, under this new Motor Pickup Sweeper method. The City administration is certainly to be congratulated upon being among the first cities to use this method of cleaning the paved streets at a considerable saving over any former method. The increased frequency of street cleaning has also greatly reduced the nuisance of dust blowing about over paved streets. This fact has been so noticed as to cause favorable comment from a great many citizens.

Oiling Roadways: This year for the first time the oiling of roadways has been done by the City. Formerly those wishing to have the street oiled as a dust layer in front of their property contracted with a private party for such work. This contractor did all the work of preparing the streets and oiling them. Realizing that the

oiling of streets, properly handled, was a great benefit to the City as a whole as well as to adjacent property owners, the Common Council passed an ordinance whereby those who wished oiling in front of or past a frontage of 132 feet, or more signed a petition for same. After paying in the cost estimated by this department, of such oiling to the City Treasurer, the oiling was done by the Street Department. The City purchased a heater and pressure distributor for the proper handling and application of this road oil and made the necessary changes at the tank, formerly provided for tar storage, to facilitate the handling of this work. The purchase of oil and application of same was handled by the Street Commissioner and reported upon by him. Estimating the cost of oiling the different districts petitioned for, the changes necessary at the storage tank, the work of unloading cars and the firing of steam boiler to keep the oil at such a temperature in the storage tank that it might be pumped to the stand pipe for the pressure distributor was handled by this department. The costs of this work in this department, which should be added to the costs shown in the Street Commissioner's report to obtain the total yearly cost of oiling streets were as follows:

Cost of pressure distributor....	\$675.00
Changes at storage tank.....	592.73
Unloading oil, firing boiler and miscellaneous work in connection with distribution of oil	134.32
Estimating costs, testing oil and miscellaneous work in connection with purchase of material and equipment....	97.56

Total\$1,499.61

SANITARY SEWERS.

This year for the first time the charter provision which limits the outstanding sewer bonds to a total of \$40,000.00 has interfered with the construction of sanitary sewers. On account of this provision it was necessary to abandon construction of two large districts and one small district and to greatly reduce another large district which were petitioned for. Such conditions for a city growing as rapidly as Ann Arbor and with the prospects which Ann Arbor has, is intolerable and steps should be taken to remedy same as soon as possible.

Four new sanitary sewer districts

were established this year in such a way as to stay within the \$40,000.00 bond limit. Plans, profiles, estimates and boundries for the assessment districts were prepared and the work was let to contract. Five sewer districts from 1916 remained incomplete at the beginning of this year. All of these districts have been completed during the year.

All sewer work was let to contract again this year and under the same specifications as last year. The results have been very satisfactory.

The detailed report of work in the various districts is given in the following paragraphs:

District No. 69, Mosely Street From Second to Third Street: As no settlement has been made by the Chicago Bonding and Surety Co., sureties for Mr. Tom Joyce of Kokomo, Ind., who was contractor on this district as on several others, district No. 69 remains in the same condition as detailed in the report for last year. Work has been completed and the sewer is in use but final settlement is being withheld pending the adjustment of Mr. Joyce's contract with the Bonding Co.

District No. 72, Hamilton, Rose & Sheehan Addition: The sewer for the Hamilton, Rose and Sheehan Addition and that part of Granger Ave. between this addition and Packard St. has finally been completed. It is the largest sanitary sewer contract awarded since 1897. Because the sewer already existing on State Street from Hoover Ave. to Granger Ave. had been laid on too steep a grade to serve this territory, it was necessary to parallel this sewer, on a flatter grade, from Hoover Ave. to the north line of the Hamilton, Rose and Sheehan Addition. The contract for this district was awarded to Tom Joyce of Kokomo, Ind., on Sept. 29, 1915, and approved by the Common Council on October 4th, 1915, together with the contract for districts No. 69, 70 and 71. Mr. Joyce commenced work on this district on November 8th, 1915, and progressed during the remainder of 1915 and the early part of 1916, on State Street from Edwin St. to Dewey Ave. Mr. Joyce abandoned his contract at this point and after due procedure the contract for completing the work in this district was awarded to R. D. Baker of Detroit. Work was commenced by Mr. Baker in November, 1916, and was completed so that the final estimate was awarded to him on November 5,

1917, approximately one year after he commenced work. Much credit is due Mr. Baker because he carried this sewer to completion although he lost a considerable sum of money in so doing.

The construction of this sewer made possible the construction of the sewer in district No. 82 on Packard St. from Granger to the city limits which sewer parallels the former sewer lead in Packard St. from Granger Ave. to Brooklyn Ave. This former sewer was only about 2 1-2 feet deep at Brooklyn Ave. end and it would have been impossible to extend it any further but because of the additional depth obtained at the corner of Granger Ave. and Packard St. in district No. 72 it was possible to provide sewerage for Packard St. to the easterly city limits. The costs for sewer in district No. 72 were distributed as follows:

Contract Cost	\$14,772.78
Work done and labor furnished by City for Contractors	168.78
Inspection	982.94
Engineering	379.18

Total\$16,303.68

After the proper deductions for all labor and material furnished to the contractor, Tom Joyce, there remains due his assignees for work completed in this district, the sum of \$103.75 which will be payable on proper settlement with his bondsmen under the indemnity bond. Five per cent of the contract cost paid to Ray D. Baker amounting to \$682.93, has been retained for one year as a fund from which to deduct the cost of any repairs to sewers or street made necessary by the construction of sewer and which may become apparent during the year. The balance of this five per cent, after these deductions have been made will be due Ray D. Baker, November 5th, 1918. The cost of all engineering and clerical work in this district amounts to 6.65 per cent of the contract cost and the cost of inspection amounts to 2.56 per cent of the contract cost. This high cost for inspection is due to the very slow progress made by the contractor in the construction of this sewer.

Sanitary tees with 4-in. openings were left in the line of the sewer for connections from all building sites and approximately in the center of each lot.

The total cost of this sewer is dis-

tributed between the district and City as follows:

City's share	\$ 3,205.00
Property share	13,088.03

Total\$16,293.03

The City's proportion is quite large because to it was apportioned the cost of sewer from Hoover Ave. to north line of Hamilton, Rose & Sheehan Addition which as above stated is parallel to a sewer formerly constructed on State St. not sufficiently deep to accommodate the sewage from the remote parts of this Addition.

Construction of this sewer in the Hamilton, Rose & Sheehan Addition was attended by considerable difficulty on account of the nature of the soil. In very few parts there was actual quick sand, but throughout the entire Addition fine water sand was encountered which made tight sheeting and extreme precaution necessary for the safety of the workmen and the proper construction of the sewer.

District No. 75, Hill, Onondaga, Geddes & Berkshire Road:

This is two eight-inch vitrified tile sewers emptying into the eight-inch sewer of the same material on Hill street at Onondaga and east thereof. The contract for this sewer was awarded to Wm. Eddy & Son on Sept. 20, 1916. Work was commenced on this district the latter part of September, 1916, and completed so that the final estimate was awarded on June 28th, 1917. The cost has been divided as follows:

Contract cost	\$2,291.02
Engineering	50.80
Inspection	157.35

Total\$2,499.17

Of the above contract cost five per cent, or \$114.55 has been retained for one year out of which to make deductions for any repairs to the sewer or street made necessary by the construction of sewer and which may become apparent within one year. The balance of the five per cent after all deductions have been made will become due Messrs. Eddy & Son, contractors, on June 28, 1918. The cost of all engineering and clerical work amounts to 2.22 per cent of the contract cost and the cost of inspection amounts to 6.87 per cent of the contract cost.

Sanitary tees with 4-in. openings were left in the line of the sewer for connections from each building site.

The total cost of this sewer was dis-

tributed between the district and City as follows:

City's share	\$ 207.00
Property share	2,084.02

Total	\$2,291.02
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District No. 76, Washington Street, From Twelfth to Fourteenth Street:

This is a vitrified tile sewer emptying from both east and west into the eighteen-inch sanitary sewer of the same material which runs across the private property of the University and down Glen Ave. The sewer extending east from the trunk sewer is 8-in. in diameter but the sewer extending west from the trunk sewer was made 15 inches in diameter to accommodate, at some future time, the sanitary sewage from the University. The contract for the sewer in this district was awarded to Hochrein & Co. on August 19, 1916. Work was commenced on this district about the middle of November and completed so that the final estimate was awarded on May 9, 1917. The costs were distributed as follows:

Contract cost	\$796.95
Engineering	22.69
Inspection	43.29

Total	\$862.93
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In order that the old University sewer might be properly connected into this new sewer on Washington St., the new sewer was extended some sixty or seventy feet to its intersection with the old sewer. The cost of this extension, amounting to \$111.95, has already been paid to the City by the University.

Of the above contract cost \$21.00 has been retained for one year from which can be deducted the cost of any sewer or street repairs made necessary by the construction of this sewer and which may become apparent during the year. The balance of this \$21.00 after any such deductions have been made will be payable to Hochrein & Co. on May 9, 1918. The cost of all engineering and clerical work in this district amounts to 2.85 per cent of the contract cost and the cost of inspection amounts to 5.45 per cent of the contract cost.

Sanitary tees with 4-in. openings were left in the line of the sewer for connections to all building sites.

There was no part of this sewer to be paid by the City for intersections or other such usual cost, but under an agreement with the University, by which they paid the cost of construct-

ing storm and sanitary sewers across their property from Huron to Washington St., that part of the assessment which would have been made against the property belonging to the University of Michigan and fronting on Washington St. was paid by the City of Ann Arbor.

District No. 80, Seventh St., From Liberty St. to Jefferson St.; In order to provide this section of Seventh St. with sewerage, it was necessary to run an eight inch lateral sewer from Fifth St. to Seventh St. through the creek valley lying between Liberty St. and Jefferson St. Right of way for this sewer was obtained from the respective property owners. The cost of this lateral sewer was borne by the City. From it sewers were extended both north and south to serve that part of Seventh St. between Liberty St. and Jefferson St. which could not otherwise have had sewerage. The contract for this work was awarded to Hochrein & Co., on Aug. 19, 1916; work was commenced on this district on October 26th, 1916, and completed so that Hochrein & Co. were awarded the final estimate on May 9th, 1917. The costs were distributed as follows:

Contract cost	\$1,090.50
Inspection	51.32
Engineering	59.04

Total	\$1,200.86
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Of the above contract cost five per cent, or \$54.53 has been retained for one year out of which to make deductions for any repairs to sewer or street made necessary by the construction of this sewer which may become apparent within the year. The balance of the five per cent retained after any such deductions have been made will be due Hochrein & Co. on May 9, 1918. The cost of engineering and clerical work amounts to 5.42 per cent of the contract cost and the cost of inspection amounts to 4.7 per cent of the contract cost.

On Seventh St., sanitary tees with 4-in. openings were left in the line of the sewer for connections from each building site. The total cost of this sewer was distributed between the district and City as follows:

Cost to City for lateral from Fifth to Seventh St.	\$529.75
Cost to be assessed against district for sewer on Seventh St.	674.75

Total	\$1,204.50
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District No. 81, Wells Street, From Baldwin Ave. to Ferdon Road: This is eight-inch vitrified tile sewer emptying into the eight-inch sewer of same material on Baldwin Ave. near where it turns onto Wells St. The contract for this sewer was awarded to Wm. Eddy & Son September, 1916. Work was completed so that the final estimate was awarded them on June 28, 1917. The costs were distributed as follows:

Contract cost	\$460.10
Inspection	15.15
Engineering	10.60
Total	\$485.85

Of the above contract cost five per cent, or \$22.00 has been retained for one year as a fund from which to make deductions for any repairs to sewer or street made necessary by the construction of the sewer which may become apparent within a year. The balance of the five per cent retained after any such deductions have been made will be due Wm. Eddy & Son on June 28, 1918. The cost of all engineering and clerical work on this contract amounts to 2.3 per cent of the contract cost and the cost of inspection amounts to 3.3 per cent of the contract cost.

Sanitary tees with 4-in. openings were left in the line of the sewer for connection from each building site.

The total cost of this sewer was distributed between district and City as follows:

City's portion	\$ 34.00
Property portion	426.10

Total **\$460.10**

District No. 82, Packard St. and Brooklyn Ave.: The sewer constructed in this district is of 8-in. vitrified tile emptying at the corner of Packard St. and Granger Ave. into the Hamilton, Rose & Sheehan Addition, District 72, sewer. This sewer from Granger Ave. to Brooklyn Ave. on Packard St. parallels the sewer constructed in this block as District No. 65, but at a considerable greater depth. The sewer built as District No. 65 was for temporary relief for residents on Packard St. between Granger Ave. and Brooklyn Ave. and was impossible of extension further east on Packard St. or of proper extension up Brooklyn Ave. The increased depth obtained in district No. 82 was made possible by the construction of sewer in the Hamilton, Rose & Sheehan Addition. This

sewer (District No. 82) extends from Granger Ave. to the City limits on Packard St. and on Brooklyn Ave. from Packard St. to Ferdon Road. The contract for this sewer was awarded to Messrs. Wm. Eddy & Son, on July 2nd, 1917. They have completed the work and were allowed the final estimate on November 5th, 1917. The cost has been distributed as follows:

Contract cost	\$4,032.02
Engineering	66.61
Inspection	66.62
Total	\$4,165.25

Five per cent of the above contract cost amounting to \$201.60 has been retained for one year as a fund from which to deduct the cost of any repairs to sewer or street made necessary by the construction of the sewer and which may become apparent during the year. The balance of this five per cent, after these deductions have been made, will be due Wm. Eddy & Son on November 5th, 1918. The cost of all engineering and clerical work in this district amounted to 1.66 per cent of the contract cost and the cost of inspection amounts to 1.66 per cent of the contract cost.

Sanitary tees with 4-in. openings were left in the line of the sewer for connection from each building site.

The total cost of this sewer was distributed between City and district, as follows:

Cost to City	\$ 351.70
Cost to be assessed against district	3,813.55

Total **\$4,165.25**

District No. 83, Eighth Street, From Huron to Washington Street: This is an eight-inch sanitary sewer emptying into eight-inch sanitary sewer on W. Huron St. at the corner of Eighth St. All the property in this district was previously assessed in sewer districts Nos. 18 and 22. Before the construction in this district was ordered, the Council insisted upon receiving, from the benefitted property owners, an agreement approved by the City Attorney, under which the property owners contracted to pay their assessments when they came due. The contract for this sewer was awarded to Hochrein & Co. on August 6th, 1917, and completed so that the final estimate was allowed on November 4th, 1917.

The cost has been distributed as follows:

Contract cost	\$319.10
Engineering	10.69
Inspection	9.22

Total\$339.01

Of the above contract cost five per cent, or \$15.95 has been retained for one year out of which to make deductions for any repairs to sewer or street made necessary by the construction of the sewer and which may become apparent within a year. The balance of the five per cent after these deductions have been made, will become due Hochrein & Co. on November 5th, 1918. The cost of engineering and clerical work in this district amounts to 3.35 per cent of the contract cost and the cost of inspection amounts to 2.86 per cent of the contract cost.

Sanitary tees with 4-in. openings were left in the line of the sewer for connections from each building site.

The total cost of this sewer was distributed between City and district as follows:

City's share	\$ 26.90
Property share	312.11

Total\$339.01

District No. 84, Killens' Heights Addition: This is all eight-inch sewer emptying into the eight-inch sewer at the former west end of Washington St., above 150 feet west of Crest Ave. The entire Killens' Heights Addition is served with the exception of three very low lying lots in the southwest corner and with the exception of certain lots fronting on Jackson Ave. which must be served by sewer to be constructed on Jackson Ave. in the near future. The contract for this sewer was awarded to Messrs. Wm. Eddy & Son on July 2nd, 1917, and the work was completed and final estimate allowed on November 5th, 1917.

The cost has been distributed as follows:

Contract cost	\$7,017.29
Engineering	91.28
Inspection	109.96

Total\$7,218.53

Of the above contract cost five per cent or \$350.86 has been retained for one year out of which to make deductions for any repairs to sewer or street made necessary by the construction of the sewer and which may become apparent within a year. The balance of the five per cent, after these deductions have been made, will be-

come due Wm. Eddy & Son on November 5th, 1918. The cost of engineering and clerical work in this district amounts to 1.3 per cent of the contract cost and the cost of inspection amounts to 1.56 per cent of the contract cost.

Sanitary tees with 4-in. openings were left in the line of the sewer for connection from each building site.

The total cost of this sewer was distributed between City and district as follows:

City's share	\$ 625.67
Property share	6,592.86

Total\$7,218.53

District No. 85, Eber White and Soule Boulevard: This sewer was petitioned for to serve the entire Eber White First Addition but on account of the charter provision which allows an outstanding sewer bond indebtedness of only \$40,000.00, it was necessary to abandon the entire district. Afterwards, however, an agreement was reached hereby the Killens Subdivision Co. agreed to pay the first quarter of the cost of sewer in district No. 84, just previously reported upon, at once upon the completion of the sewer so that it would not be necessary for the issuing of the full amount of bonds for this district. This then reduced the proposed bond issue so that it was possible to construct a sanitary sewer on Soule Boulevard from Liberty St. to Maxwell Ave. and on Eber White Boulevard from Elder Boulevard to Madison St. These two sewers are what constitute District No. 85. Sewers to serve the rest of Eber White First Addition were delayed for future construction. Contract for sewers in this district was awarded to Hochrein & Co. on August 6th, 1917, and work was completed so that the final estimate was allowed November 5th, 1917.

The cost has been distributed as follows:

Contract cost	\$1,925.25
Engineering	27.91
Inspection	82.63

Total\$2,035.79

Of the above contract cost five per cent, or \$96.26 has been retained for one year as a fund from which to deduct the cost of any repairs to sewer or street made necessary by the construction of the sewer and which may become apparent within a year. The balance of the five per cent, after

these deductions have been made, will become due Hochrein & Co. on November 5th, 1918. The cost of engineering and clerical work in this district amounts to 1.45 per cent of the contract cost and the cost of inspection amounts to 4.3 per cent of the contract cost.

Sanitary tees with 4-in openings were left in the line of the sewer for connection from each building site.

The total cost of this sewer was distributed between City and District as follows:

City's portion	\$ 282.65
Property portion	1,753.14

Total	\$2,035.79
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Ninth Street Sanitary Sewer: As reported in my annual report for 1916 the property owners on Ninth St. between Washington and Huron Sts. petitioned the Council for sanitary sewer in that block. At the time of building the sanitary sewers on Huron St. and Washington St., Districts No. 18 and 22, all of the property now fronting on Ninth St. was entirely assessed leaving only a very small parcel which was excepted in forming the boundries for district No. 53 to bear the entire burden of the sewer in this block. The Council ordered plans and specifications to be prepared and upon presentation of these to the sewer Committee it was decided that an agreement must be entered into under which all the property owners benefited would pay for the cost of construction of this sewer. This agreement was not entered into during 1916 and not until after contracts for the previously reported upon sewer districts were entered into in 1917. It was then impossible to issue any more bonds for sanitary sewer construction and consequently construction of this sewer had to be deferred until another year.

Pontiac, Wright and Cedar Streets Sanitary Sewer: The Common Council ordered plans for sanitary sewer to be constructed on Pontiac St. from Moore St. to the City limits, on Cedar St. from Pontiac St. to Wright St. and on Wright St. from Swift St. to Kellogg St. These plans and specifications were prepared at a cost of \$12.28 and referred to the Sewer Committee sitting as a Board to hear arguments for or against the sonstruction of such sewers. Many owners of the benefited property appeared and protested against the construction of a sewer at

this time and as there was not a sufficient allowable bond issue to cover the construction of all wished for sanitary sewers during the present year, construction of this sewer was abandoned until another year.

Packard Lawn Addition Sanitary Sewer: The property owners in the Packard Lawn Addition petitioned the Council for the construction of sewers throughout that Addition. However, when it was discovered that the allowable bond issue for this year was not sufficient for all wished for sewers, this was one of the proposed sewers to be abandoned until some time in the future. The cost of what work was done on this district amounts to \$4.88.

In the construction of sewer to serve this Addition it will be necessary to construct a small, automatically controlled pumping station to raise the sewage into the sewer just completed in the Hamilton, Rose & Sheehan Addition, District No. 72, the property in the Packard Lawn Addition lying even lower than that in the south-eastern corner of the Hamilton, Rose & Sheehan Addition.

Abandoned Contracts of Tom Joyce: No settlement has been reached with Mr. Joyce or his bondsmen in the matter of contracts abandoned by him and the matter remains as detailed in my annual report for 1916. It is my understanding that the City Attorney expects to push this matter to adjjustment of some sort in the near future.

Sanitary Sewer Records For State Sanitary Engineer: As reported in my report for 1916, the Common Council on March 20th, 1916, ordered that such plans of the entire sewer system as are required by the State Sanitary Engineer be prepared and forwarded to him at Lansing. We anticipated in our report of last year that this work would be completed by March, 1917, but due to the large amount of work which we have handled the past year together with the shortage of help, it was impossible to complete them during the year. The total cost to date including \$88.34 spent during 1916, amounts to \$768.76, leaving the net amount spent during 1917 as \$680.42. The State Sanitary Engineer recently called for these plans to be submitted at the very earliest possible date and we are rushing the completion of them as much as possible and we hope that they will be submitted to him in the very near future.

Sanitary Sewer Relief and Sewage Disposal Report: On July 3rd, 1916, as reported on in my annual report for 1916, the Council resolved that the City Engineer make a report containing suggestions for the relief of the main sanitary sewer and for sewage disposal for the City of Ann Arbor, etc. This resolution was caused by the condition of the main sewer on certain days and in certain seasons of the year when it flowed under pressure and backed up in the low connection of the Ann Arbor Abbatoir Co. on Depot St. Work on this was started during 1916 but early in 1917, as will be reported upon under the heading of Sanitary Sewer Maintenance, a severe clogage of the main sewer just east of Glen Avenue was found and repaired, doing away with the trouble which was the cause of this order for investigation. Since the repair of this sewer it has had ample

capacity to care for the sewage carried to it. For this reason work was discontinued on the investigation until such time as the subject should again become pertinent enough to warrant the expenditure of a considerable sum of money upon it.

Tapping Sanitary Sewers: Under a ruling made by you in July, 1914, all tapping of sanitary sewers has been done by a City employee. The total cost of the work during this year has been \$20.90.

Payment of Five Per Cent Retained: On sewers completed by contractors during 1916 and reported upon in my report for that year the following amounts have been expended in payments to contractor and for work done by the City in the repairing of streets made necessary by the sewer construction. In each case these amounts aggregate the sum of five per cent retained for one year.

Dist. No.	Location	Paid to Contractor	Contractor
74	Lincoln St.,	\$ 30.51	Hochrein & Co.
77	John K. Ave.	50.61	Hochrein & Co.
79	Hiscock St.	58.08	Wm. Eddy & Son
78	Fifth St.	40.04	Wm. Eddy & Son
73	Eber White Add.	125.06	Hochrein & Co.
70	West St.	28.54	Wm. Eddy & Son

Sanitary Sewer Maintenance: The care and maintenance of existing sanitary sewers during the year 1917 has cost the sum of \$1,839.85. This includes the cost of material, labor, tools, supplies and everything except the amount paid to the Ann Arbor Water Department for water for flushing. This is \$686.42 more than the amount spent for the same purpose during the year 1916. As time goes by and the age of existing sewers grows greater this amount will increase, due principally to the accumulation of roots in the sewers and to the increased number and length of sewers in service. Whenever cleaning of the sewer is impossible under existing conditions the cleaning is affected in such a way that the future cleaning of sewers will be possible with tools and appliances at hand. On account of the backing up of the water in the main sewer into the cellar of the Ann Arbor Abbatoir Co. previously referred to, the main sewer was cleaned from its outlet in the Huron river near Fuller St. bridge to the corner of Fourth Ave. and Depot St. This sewer had not been cleaned

or inspected since 1893 and the cleaning was undertaken to insure that the backing up was not caused by any obstruction in this main sewer. However, stoppage was found in two places caused by roots, and one section 180 ft. long east from Glen Ave. was completely stopped by the accumulation of gravel. When it was attempted to clean this section the tile was found to have been crushed down, being broken into four sections, and it was necessary to replace the entire section 180 feet. An outlet for the sewage was constructed to the river at the foot of Glen Ave. in order to make possible the reconstruction of this section just east of same.

When this was reconstructed and the outlet at the foot of Glen Ave. closed so that the sewage flowed through this section the sewer was found to have sufficient capacity to care for the sewage which came to it. The Ann Arbor Abbatoir Co. has experienced no trouble since. The cost of this work on the main sewer during the year 1917, which cost is included in the above total of \$1,839.35, was \$851.25.

Prevailing Prices: The prices for work of this kind have varied very materially during the past year but at the time the contracts were awarded the prices were approximately as follows:

Team labor, per nine hour day, \$	6.00
Common day labor, per hour,...	.35
Brick, per thousand delivered	
on job,	15.00
Manholes castings	11.75
Cement, per barrel delivered on	

job in small quantities..... 2.40
 Pipe per foot as follows F. O. B.
 cars Ann Arbor: 8-in., 26c; 10-in.,
 39c; 12-in., 50c.

Summary of Sanitary Sewer Districts: A tabulated summary of the above report on sewer districts No. 72 to 85 inclusive, with the exception of those completed previous to the beginning of 1917, is given on the following page with information and costs of same.

SUMMARY OF SANITARY SEWERS BUILT DURING 1917

Streets and Limits	District	No. of house connections	Total length house con.	Length of main	Manholes	Flush tanks	Lightholes	Total cost	City to pay	Property to pay	Amount of contract	5% retained on contract	When Due	Contractors
Hamilton, Rose & Sheehan	72	311	10297	33	9			16293.03	3205.00	13088.03	14924.99	682.93	Dec. 3, 1918	Ray D. Baker
Hill, Onondaga & Berkshire	73	27	1366	6	2			2499.17	207.00	2292.10	2297.92	114.55	July 7, 1918	Wm. Eddy & Son
Washington, 12th to 14th	76	22	646	3	1	2		862.93		862.93	796.95	21.00	May 23, 1918	Hochrein & Co.
7th, Liberty to Jeff.	80	6	1374	6	2			1204.50	529.75	674.75	1090.50	54.53	May 23, 1918	Hochrein & Co.
Wells, Baldwin to Ferdon	81	16	368	3	1			485.85	34.00	451.85	440.10	22.00	July 7, 1918	Wm. Eddy & Son
Packard and Brooklyn	82	17	3307	11	2			4165.25	351.70	3813.55	4032.02	201.60	Nov. 5, 1918	Wm. Eddy & Son
Eighth St., Huron to Wash.	83	6	210		1			339.01	26.90	312.11	319.10	15.95	Nov. 5, 1918	Hochrein & Co.
Killins Heights Add.	84	196	5324	14	8			7218.53	625.67	6592.86	7017.29	350.86	Nov. 5, 1918	Wm. Eddy & Son
Eber White & Soule Blvds.	85	31	1144	7				2035.79	282.65	1753.14	1925.25	96.26	Nov. 5, 1918	Hochrein & Co.
Totals	714		24036	83	26	2		35104.06	5262.67	29841.32	32837.21	1559.48		

STORM SEWERS AND CARE OF STORM WATER.

Allen's Creek Main Storm Sewer: By adopting the Sewer Committee's report of March 20, 1916, the Common Council ordered your engineer to make a survey of Allen's Creek and all its branches and to make plans and a report on converting this creek into a main storm sewer, the report to include the sizes of such sewer. This is a project that has needed the attention of the City for some time. In order to make this report it was necessary to prepare a map of the entire area drained by this Creek and subdivide this into areas drained by both the natural and artificial tributaries. The number of acres in each of these small areas had to be figured and the time for water to run from the most remote part of it to the outlet in Allen's Creek. From these factors, the sizes of sewer sections from place to place along the main creek could be determined. A survey of the entire creek with its tributaries had to be made and mapped and the location, sizes and grades of the proposed structure shown on the map. This work was completed and estimate and plans were presented to the Council on August 6th, 1917. The cost for this work was \$459.91, of which \$313.89 was spent during the year 1916, leaving \$146.07 as the amount spent during 1917.

Certain recommendations were made in this estimate presented to the Council as to the advisability of starting this work as soon as possible and if it is impossible that it be constructed in one year to construct it section by section as the funds might be provided. I think that this recommendation should have consideration and that the start, no matter how small, should be made during the coming season.

Storm and Sanitary Sewers on Glen Avenue: These sewers were completed and reported upon in my report for 1916. During the year 1917, however, close watch was kept on this sewer and a man was sent through it several times to observe its condition. This work has cost \$28.88.

West Jefferson Street Storm Sewer: On July 3, 1916, the Common Council ordered the construction of storm sewer on Jefferson St. from Third to Sixth Sts. Bids were received on July 19, and the contract was awarded to Hochrein & Co. of this city. This

sewer varies in size from twenty-four inch tile at Third St. to eighteen-inch tile at Sixth St. It empties into the twenty-four inch tile sewer constructed in 1914 on Jefferson St. between Second and Third Sts. Work in this district was completed so that the final estimate was awarded on May 9th, 1917. The cost was distributed as follows:

Contract cost	\$1,909.96
Engineering	40.85
Inspection	77.04

Total\$2,027.85

Of the above contract cost five per cent, or \$91.98, has been retained for one year as a fund from which to deduct the cost of any repairs to sewer or street made necessary by the construction of the sewer and which may become apparent within a year. The balance of this five per cent, after these deductions have been made, will be due Hochrein & Co. on May 9, 1918. The cost of all engineering and clerical work on this sewer amounts to 2.14 per cent of the contract cost and the cost of inspection amounts to 4.04 per cent of the contract cost.

West Madison Street Storm Sewer: The storm sewer on Madison St. from First to Fourth St. was ordered by the Council on July 3rd, 1916. It is 30-in. segment block construction from First St. to Second St. and 24-in. tile from Second St. to Fourth St. It empties into the 24-in. tile sewer on Madison St. at the corner of First St., which sewer must be enlarged some time in the future to care for the greater amount of storm water which will come to it. Bids were received on July 19th, 1916, and the contract was awarded to Hochrein & Co. of this city. Work was completed so that the final estimate was awarded to the contractor on June 6th, 1917. The total cost is distributed as follows:

Contract cost	\$2,655.99
Engineering	49.51
Inspection	61.36

Total\$2,766.86

Of the above contract cost five per cent, or \$131.34, has been retained for one year as a fund from which to deduct the cost of any repairs to sewer or street made necessary by the construction of the sewer and which may become apparent within a year. The balance of this five per cent, after these deductions have been made, will

be due Hocrein & Co. on June 6, 1918. The cost of all engineering and clerical work on this sewer amounts to 1.87 per cent of the contract cost and the cost of inspection amounts to 2.3 per cent of the contract cost.

Arch Street Storm Sewer: A storm sewer was ordered on Arch St. from Packard St. to Oakland Ave., by the Common Council on August 21, 1916. Bids were received Sept. 20th and the contract awarded to Messrs. Eddy & Son of this city. This is a 12-in. vitrified tile sewer emptying into the storm sewer of same size and material extending on Arch St. from Packard St. to the concrete main storm water culvert. Work on this sewer was practically completed at the end of 1916 but not finally accepted. The final estimate was not given until June 28, 1917. The cost has been distributed as follows:

Contract cost	\$639.60
Engineering	18.47
Inspection	16.35

Total\$674.42

Of the above contract cost five per cent, or \$31.98, has been retained for one year as a fund from which to deduct the cost of any repairs to sewer or street made necessary by the construction of the sewer and which may become apparent within a year. The balance of this five per cent, after these deductions have been made, will be due Wm. Eddy & Son on June 28, 1918. The cost of all engineering and clerical work on this sewer amounts to 2.9 per cent of the contract cost and the cost of inspection amounts to 2.56 per cent of the contract cost.

Storm Sewer on Cambridge Road and Baldwin Ave., From Lincoln Ave. to Washtenaw Ave.: For many years the need of a storm sewer on Cambridge Road has been acknowledged and many efforts have been made to secure the necessary funds to construct same. In 1914 this sewer was built from Forest Ave. to Lincoln Ave. but the money thus provided was not sufficient to complete the remaining three blocks. During the past year money was appropriated in the Bridge Crosswalk and Culvert fund for the completion of this sewer. Bids were received on June 20, 1917, and the contract awarded to Messrs. Wm. Eddy & Son on July 2nd, 1917. The work was completed and the contractor was awarded final estimate on

December 1st, 1917. The cost was distributed as follows:

Contract cost	\$3,925.14
Engineering	39.74
Inspection	69.95

Total\$4,034.83

Of the above contract cost five per cent, or \$196.01, has been retained for one year as a fund from which to deduct the cost of any repairs to sewer or street made necessary by the construction of the sewer and which may become apparent within a year. The balance of this five per cent, after these deductions have been made, will be due Wm. Eddy & Son on December 1st, 1918. The cost of all engineering and clerical work on this sewer amounts to one per cent of the contract cost and the cost of inspection amounts to 1.78 per cent of the contract cost.

Both that part of the sewer from Forest Ave. to Lincoln Ave., which was constructed in 1914, and the part built during the past year, from Lincoln Ave. to Baldwin Ave. was constructed as 24-in. sewer against my advice. In computing the size of this sewer very conservatively, I found that a sewer not smaller than 39 inches inside diameter would, as the south eastern part of the city developed, be needed. The Common Council, however, ordered that one of 24-inch diameter be built. This was due to the fact that at the time the first section was ordered the funds were insufficient to build a sewer of larger size.

South State Street and Dewey Avenue Storm Sewer: Since the construction of the pavement on Packard St. in 1911, the storm water from the eastern end of Packard St. pavement and adjoining territory has been emptied into the gutter on Dewey Ave. at a point about 150 feet west of Packard St. with no possible chance for it to run off until the water rose high enough to flow over the sidewalks and on to adjacent property, or until it soaked away into the ground. Since 1911, Dewey Ave. has become quite closely built up and such a condition was intolerable and would undoubtedly have been the cause of controversy had not the condition been relieved this year. To relieve this condition it was necessary to start at the corner of Edwin St. and State St. and rebuild the concrete culvert

on the east side of State St. from Edwin St. to Arch St. in order that the storm sewer emptying at this point and extending south on State St. to Dewey Ave. and east on Dewey Ave. to Packard St. would be under the ground surface at the low points on Dewey Ave. From Arch St. to Dewey Ave. on State St. this is 30-inch segment block sewer and on Dewey Ave. it is 24-inch, 20-inch and 18-inch sewer intersecting at Packard St. the sewer which was built in 1911 to relieve the eastern end of the Packard St. pavement. Money for the construction of this sewer was provided in the Bridge, Crosswalk and Culvert budget for this year. Bids were received on June 20th, 1917, and the contract awarded to Messrs. Eddy & Son of this city on July 2nd, 1917. Work was completed and the final estimate was awarded December 1st, 1917. The cost has been distributed as follows:

Contract cost	\$11,986.19
Engineering	162.63
Inspection	223.89

Total\$12,372.71

Of the above contract cost five per cent, or \$589.47, has been retained for one year as a fund from which to deduct the cost of any repairs to sewer or street made necessary by the construction of the sewer and which may become apparent within a year. The balance of this five per cent after these deductions have been made, will be due Wm. Eddy & Son on December 1st, 1918. The cost of all engineering and clerical work on this sewer amounts to 1.36 per cent of the contract cost and the cost of inspection amounts to 1.87 per cent of the contract cost.

South University Avenue Storm Sewer, From E. University Avenue to Between Tappan Avenue and Oakland Avenue: It was proposed during the early months of 1917, as reported upon in the section under Paving, to construct a pavement on S. University Ave. from State St. to Washtenaw Ave. For that reason money was provided in the Bridge, Culvert and Crosswalk fund to construct this storm sewer to care for water on this pavement from State St. to E. University, the balance of the district being cared for by storm sewer constructed many years ago. Bids on this sewer were received on June 20, 1917, and the contract

awarded to Wm. Eddy & Son on July 2nd. Work was completed and final estimate awarded, December 1st, 1917. Distribution of costs has been as follows:

Contract cost	\$1,431.66
Engineering	16.54
Inspection	62.67

Total\$1,510.87

Of the above contract cost five per cent, or \$71.58, has been retained for one year as a fund from which to deduct the cost of any repairs to sewer or street made necessary by the construction of the sewer and which may become apparent within a year. The balance of this five per cent after these deductions have been made, will be due Wm. Eddy & Son on December 1st, 1918. The cost of all engineering and clerical work on this sewer amounts to 1.15 per cent of the contract cost and the cost of inspection amounts to 4.4 per cent of the contract cost.

Edwin Street (Now Hoover Ave.) and McKinley Ave. Storm Water Culvert: This culvert was completed and reported upon in my report of 1916. However, it developed that the top of this culvert between Division and Sybil St. had been frozen during the construction. An attempt was made to repair same but the new concrete did not bond to the old concrete. The contractors, Barnes & O'Neil were notified to repair same. They attempted a second time to bond the new top over the old concrete and were again unsuccessful. The five per cent retained on this contract has not as yet been paid and will not be approved for payment until the sewer is properly fixed by the contractors or taken care of by the City and the proper deduction made for the cost of same.

Care of Storm Water General: For the care of storm water in the various parts of the City a total of \$302.20 has been spent through this department. Of this \$253.43 was for the care of storm water in the alley on the east side of the postoffice. It also relieved the sloppy condition on Catherine St. on the north side of the postoffice. The remainder of the above amount was spent on miscellaneous work in various parts of the city.

Storm Sewer Maintenance: The maintenance and cleaning of storm sewers in the various parts of the city, cleaning inlets, etc., during the

past year has cost \$324.54 which is \$107.60 more than last year. This work has been scattered in all parts of the city wherever storm sewers exist and has been caused mainly by repairing broken inlets, cleaning inlet runs and in a very few cases a section of the main storm sewer clogged by sand, in one case a clogage from roots and in other cases the adjustment of inlets to fit the curb or gutter grades.

Five Per Cent Retained: The only storm sewers completed during the year 1916 on which the five per cent retained becomes due during 1917, were Edwin St. and McKinley Ave. storm culvert, Miller Ave. storm sewer from Allen's Creek to Brooks St. and Glen Ave. storm and sanitary sewer. The five per cent due on Edwin St. and McKinley Ave. culvert, as previously reported on, is being held, as is also the five per cent due on the Glen Ave. storm and sanitary sewer. The only five per cent retained on storm sewers paid in 1917, was that on Miller Ave. from Allen's Creek to Brooks St. There was deducted from this five per cent, \$7.22 for work done by the city. The remainder amounting to \$352.33 was paid to A. H. Prange, the contractor on August 6th, 1917.

Need For Storm Sewers: During the past three years \$46,000.00 has been appropriated in the Bridge, Culvert and Crosswalk fund. Contracts for storm sewers aggregating almost this entire amount have been com-

pleted. These appropriations have done a great deal to improve the condition which existed three years ago. There is still, however, need for further storm sewer extensions in all parts of the city. The most important storm sewer needed at the present time, however, is the converting of Allen's Creek into a main storm sewer as previously reported upon. The necessity of a large annual appropriation for storm sewer work will continue for many years to come and should be borne in mind at the time of making up the budget. If this work is neglected for any year or period of years it will throw an increased burden on the succeeding years. The fact that the total cost of storm sewers to date has been considerable less than one half the total cost of sanitary sewers is evidence in itself that the storm sewers have been neglected. Good streets and convenience to the traveling public cannot be maintained without adequate storm sewers in all parts of the city.

Prevailing Prices: Prices on storm sewer construction have been the same as those on sanitary sewer construction with the following additions:

Pipe per lineal foot, f. o. b. cars this city: 15-in., 67c; 18-in., 92 1-2c; 20-in., \$1.11; 24-in., \$1.66 1-2.

Summary: A summary of storm sewer work completed during the past year and a summary of all storm sewers in the entire city will be found on the following pages.

SUMMARY OF STORM SEWERS BUILT DURING 1917

Street and Limits	Length of Main	Length of inlet con.	Inlets			Manholes	Total Cost	Amount of Contract	5% retained on contract	When Due	Contractors
			Regular	Alley	Special						
W. Jefferson, 3rd to 6th	971	605	17			4	\$2027.85	\$1839.65	91.98	May 23, 1918	Hochrein & Co.
W. Madison, 1st to 4th	990	544	12			6	2766.86	2626.85	131.34	June 6, 1918	Hochrein & Co.
Arch st., Packard to Oakland....	375	195	6			3	674.42	639.60	31.98	June 28, 1918	Wm. Eddy & Son
State, Edwin to Dewey;											
Dewey, State to Packard	2824	545	21		1	15	12448.71	11488.48	589.47	Dec. 3, 1918	Wm. Eddy & Son
S. University, State to E. Univ....	780	94	6			7	1510.87	1831.66	71.58	Dec. 3, 1918	Wm. Eddy & Son
Cambridge, Lincoln to Baldwin;											
Baldwin, Cambridge to Washtenaw	1123	531	20				4133.03	3920.20	196.01	Dec. 3, 1918	Wm. Eddy & Son
Alley in B. 2 N., R. 4 E.....	250			2	1		253.43				City Force Acc.
Totals	7313	2514	82	2	2	35	23815.17	22247.41	1112.36		

SUMMARY OF STORM SEWERS IN THE CITY OF ANN ARBOR.

Date.	Sewer.	Cost.
Built prior to 1900		\$26,411.72
	Catherine street, Allen's Creek to Main street.....	1898
	Ann street, Allen's Creek to Main street.....	1898
	Huron street, Allen's Creek to 12th street.....	1898-9
	Washington street, Allen's Creek to 5th Ave.....	1898-9
	Liberty street, Allen's Creek to Main street.....	1898
	Liberty street, Main street to State street.....	1899
	State street, Liberty street to N. University.....	1899
	Williams street, Allen's Creek to Main street.....	1898
	Hill street, Allen's Creek to 12th street.....	1899
	Twelfth street, Hill street to Monroe street.....	1899
	Monroe street, Thayer street to E. University.....	1899
	East University Avenue, Monroe to S. University.....	1899
	South University Avenue, E. University to Linden....	1899
	Linden street, S. University Ave. to Geddes Ave.....	1899
	Washtenaw Ave. from Wilmot to Damon's east line..	1899
	South Main street to Madison street.....	1899
	Madison Street, Main street to First.....	1899
	First street, Madison to Mosley.....	1899
1902,	State street, Hill to S. University.....	\$ 1,667.22
1902,	Ann street, Main street to 4th Ave.....	543.95
1905,	North University, State street to 12th street.....	361.00
1905,	East William street, Main street to Maynard street.....	3,014.67
1906-1907,	Roosevelt Avenue and across Judson's land.....	1,710.41
1906,	East Washington street, Fifth Ave. to State street.....	3,781.82
1909,	Washtenaw Ave. and Hill street, from Baldwin to Oxford...	653.90
1910,	Washington street, State street to Ingalls street.....	563.27
1911,	Ann St., 4th Ave. to 5th Ave., and alley in B. 1 N., R. 4 east.	443.14
1911,	Alley in B. 3 S., R. 3 east.....	250.92
1911,	Hill street, Oxford Rd. to Cambridge Road.....	116.87
1911,	Packard street, Hill street to Monroe street.....	868.97
1911,	Hill street, Cambridge road to Oswego street.....	340.66
1911,	North Main street, at Summit street.....	207.47
1911,	Mary street and Benjamin, from Edwin to Division streets..	884.78
1911,	Church street, Washtenaw Ave. to S. University.....	1,291.44
1911,	Concrete culvert on State, Arch, White, McKinley and Packard	3,422.95
1911,	Other storm sewer work, including the sewer on Packard street at Dewey Avenue.....	1,552.01
1912,	Church street, S. University Ave. to Roosevelt Ave.....	2,776.43
1912,	Willard street, Church street 144 ft. west.....	168.53
1912,	Ashley street in connection with pavement.....	267.00
1912-1914,	Alley in B. 2 S., R. 2 E.....	63.99
1913,	Liberty street, Allen's Creek to city limits.....	4,077.47
1913,	W. Huron street, Allen's Creek to forks.....	4,420.37
1913,	E. Washington street, low point in street to Cat Hole.....	439.35
1913,	Liberty street and 1st street, in connection Liberty street pavement	103.46
1913,	W. Huron St. east of Allen's Creek, in connection with Huron street pavement	62.75
1914,	Cambridge Road, Forest Ave. to Lincoln Avenue.....	2,397.22
1914,	W. Jefferson street, Second street to Third street.....	1,095.62
1914,	North Division street, Detroit street to Ann street.....	2,309.81
1914,	Alley in B. 1 N., R. 3 east.....	59.64
1914,	Catch basin, inlets and extensions on Packard, Arch, and State streets	168.40
1915,	Madison, Division, and Jefferson, from Allen's Creek to State street	3,646.17
1915,	East Jefferson, from 5th Ave. to Hamilton Place.....	506.23
1915,	Geddes Ave. from Linden street to Boulevard.....	1,056.21
1915,	Care of Storm water on Division at Liberty street, William street and Detroit street in connection with pavement....	253.70
1915,	Small extension and new inlets.....	352.60

1916, Concrete culvert on Edwin street and McKinley Ave.....	6,447.94
1916, Storm and sanitary sewers on Glen Ave. and University property from Huron river to Washington street.....	13,350.33
1916, Miller Ave. from Allen's Creek to Brooks street.....	7,410.60
1916, Inlets, manholes, and extensions on Catherine street from Main street to Allen's Creek in connection with paving....	159.45
1917, W. Jefferson street, Third to Sixth street.....	2,027.85
1917, W. Madison street, Frist to Third street.....	2,766.86
1917, Arch street, Packard street to Oakland Avenue.....	674.42
1917, State street and Dewey Avenue, Edwin street to Packard....	12,448.71
1917, Cambridge Road and Baldwin Ave., Lincoln Ave. to Wash-tenaw Avenue	4,133.03
1917, So. University Avenue, E. University to Ingalls street.....	1,510.87
1917, Extension from Main street and Catherine street into alley in Block 2 N., Range 3 east.....	253.43
Total	\$123,503.16

SUMMARY OF SEWERS AND PAVEMENTS.

The total cost of new sewers and pavements completed in Ann Arbor to date is divided among such improvements as follows:

Pavements	\$391,023.39
Sanitary sewers	259,289.80
Storm sewers	123,503.16

Total \$773,816.35

The total cost of new pavements and sewers completed in Ann Arbor to date is divided according to the year of completion as follows:

Prior to 1900	\$176,616.21
1900	28,372.81
1901	3,704.93
1902	36,850.85
1903	34,229.39
1904	5,024.40
1905	18,744.79
1906	12,986.96
1907	34,931.94
1908	10,489.40
1909	11,867.30
1910	24,166.12
1911	82,549.47
1912	20,022.31
1913	54,369.77
1914	51,218.16
1915	51,163.83
1916	57,588.48
1917	58,919.23

Total \$773,816.35

The total cost of repaving of streets completed in Ann Arbor to date is divided according to the year of completion as follows:

1914, State St., William to Liberty St.	\$4,572.98
1916, Liberty St., 4th Ave. to 5th Ave.	5,104.62
1917, E. Huron St., 4th Ave. to 5th Ave.	7,812.93

Total \$17,490.53

PUBLIC IMPROVEMENTS OTHER THAN SEWERS AND PAVEMENTS.

Broadway Bridge: As shown in my report for 1916, the matter of Broadway bridge had been dropped during the latter part of 1916 because the lowest bid received for construction of same exceeded the amount of money available by more than \$20,000.00. On February 14th, 1917, new bids were received for the construction of this bridge as published in the Council proceedings for February 19, 1917, the lowest bid being that of J. P. Rusche of Grand Rapids, Mich., amounting, without roadway paving, to \$50,375.91. This still exceeded the amount of money available by \$20,000.00. It was recommended to the Council by the Board of Public Works that the bid of J. P. Rusche be accepted, provided the necessary additional funds were raised at the April election. This action was approved by the Common Council. Under date of Feb. 25th, 1917, Mr. A. C. Marshall, vice president of the Detroit Edison Co., offered to increase their original offer of \$5,000.00 toward the construction of this bridge by \$2,000.00, making a total of \$7,000.00 which they would pay toward the construction of the bridge. His letter is published in the Council proceedings of March 5th, 1917. This made the total amount available \$32,000.00 and left the additional amount to be appropriated at the April election \$18,000.00. This proposition was favorably voted upon by a majority of 1774 or a majority over the necessary three-fifths of 589. The contract was therefore entered into with Mr. Rusche of Grand Rapids. It was expected at the time work commenced that everything would be completed by the first of December, at the latest, but delays have been encountered so that

the work is not yet completed nor has traffic been allowed to go over the new structure. Our anticipation at the present time is that the bridge will be in shape for traffic not later than February 1st but that the railing and sidewalks will not be constructed until favorable weather in the spring. An arrangement was made with the Michigan Central Railway Co. whereby, during the construction of this bridge, foot and horse drawn traffic has been permitted to cross their bridge over the Huron river at this locality. This has minimized to a great extent the inconvenience of having this bridge torn out. The amount of money expended on this bridge to date has been divided as follows:

Payments to contractor...	\$30,732.44
Engineering	901.54
Inspection	471.07

Total	\$32,105.05
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The amount for engineering included \$587.66 spent during the year 1916 and reported upon in my report for that year, leaving the net amount spent during 1917 for engineering \$313.88 and the total net amount spent during 1917 on this project \$31,517.39.

Bridge at Island Park: When the new bids were received on Broadway bridge in February, 1917, new bids were also received for this structure, the lowest bid being submitted by J. P. Rusche, the successful contractor on Broadway bridge, amounting to a little over \$1,200.00. When the budget for the year 1917 was made up an additional appropriation of \$800.00 was made in the Bridge, Crosswalk and Culvert fund which added to the \$500.00 appropriated in 1916 gave a total of \$1,300.00 for the purpose of constructing this bridge. On August 6th, 1917, this department was authorized by the Council to proceed with the construction on this bridge by City Force Account. The necessary reinforcing bars were at once ordered, but were not received until in November, 1917, when it was deemed too late to commence construction. This bridge will be built as early in the spring as the weather will permit, the necessary steel bars which are the most difficult part of the material to secure, being now on hand. The cost of the work has been distributed as follows:

Engineering	\$ 82.36
Steel bars	105.41

Total	\$187.77
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Of this amount \$65.69 for engineering was spent during 1916 and reported upon in my report for that year, leaving the net amount spent during 1917, \$122.08 and the amount spent during 1917 for engineering, \$16.67.

Bridge and Viaduct Maintenance: After bids were received in September, 1916, for the construction of the new bridge over the Huron river on Broadway and it was seen that such a bridge would cost much in excess of the amount of money already appropriated, it was found that several rods on the old bridge were broken and not therefore doing the work for which they were intended. These were fixed by steel workers who were at that time doing steel work in connection with Waterman Gymnasium for the University of Michigan. The bill for this work was not presented and paid until May, 1917. The cost of this work was \$33.00.

During the year the viaduct from the bridge over the Michigan Central Railroad on Broadway to the bridge over the Huron river on Broadway was gone over with a cement mortar wash to repair cracks and prevent any further disintegration or opening. The same work was done on the Wall St. bridge over the Huron river. The cost for this work at both places was \$36.05.

Work at Fire Station No. 1: As shown in my report for 1916 a heating plant for fire station No. 1 was being constructed at that time. Payment to contractor for work on same amounted to \$1800.00. This work was completed and final estimate allowed to G. A. Raiser on March 7th, 1917. The total cost for this heating plant was distributed as follows:

Engineering	\$193.94
Payment to Contractor	\$572.81

Total	\$2,766.75
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This plant, however, is not yet in successful operation. The greatest trouble has been with leaky valves which will not allow the system to operate properly. At the time this plant was constructed it was necessary to do some unforeseen work and make some changes in the sewer from this building. For this work Mr. Raiser has not yet been paid. Under instructions from the Fire Committee of the Council, I wrote him a few days ago stating that unless this plant was put in proper shape at once, we would have the necessary work done

by someone else and deduct for same from any moneys which were due him. The plant was guaranteed against defective material and workmanship for a period of one year.

After the Fire Department was completely motorized, it became desirable to tear out certain partitions and construct a larger door in the rear of the building through which the motor apparatus might be driven. Money was appropriated and you were instructed to make these changes, but upon further consideration you deemed it advisable to make more extensive changes, in the removal of additional partitions, which you recommended to the Council. Plans and specifications for same were prepared by us, under the direction of a special committee appointed from the Board of Public Works and the Common Council, at a total cost of \$9.96. After bids were received under these plans and specifications, however, the money for such elaborate changes was not available and the matter was left for the appropriation of necessary funds at the time of making up the budget next spring. Only such changes as were absolutely necessary and would fit in with the future more elaborate changes, were made this fall. A contract was entered into with Henry Hochrein for the construction of new doors in the rear of the building similar to these now in the front of the building.

The scales at the Fire Station No. 1 were out of repair and in such worn out condition that it was deemed advisable to construct new ones and these were ordered by the Common Council on May 21, 1917. Bids were received for both ten ton wagon scales and twenty ton auto truck scales, the contract being awarded on July 2nd, 1917, to Fairbanks-Morse Co. for a twenty ton auto truck scale, the City to construct the concrete scale pit and to furnish unskilled labor for the erection of this scale. The scales have been completed but owing to certain correspondence with the Fairbanks-Morse Co. relative to the payment for planking used by them in the construction of these scales, payment has not yet been made to them. The total cost to date has been as follows:

Engineering labor.....	\$42.80
Material	64.93
Unskilled labor	196.32

Total\$304.05

In addition to this amount the Street Commissioner furnished labor

and material, as reported upon in his report for 1917, to the amount of \$290.26. Also to be added to the above amount is the amount to be paid to Fairbanks-Morse Co., \$555.00, making the total cost of the scales completed \$1,149.31.

Garbage and Refuse Disposal: As reported upon in my report for 1916, the Council, under date of December 4th, 1916, resolved that the Board of Public Works be directed to prepare the necessary plans and specifications for a garbage disposal plant for the City of Ann Arbor. One trip was made, by all the Aldermen and members of the Board of Public Works who cared to go, to the Village of Highland Park to see the incinerator in operation there. Bids were received by you allowing each bidder to bid upon his own plans and specifications. You also decided that this plant should be located at the old "pest-house" site on the north side of Fuller St., between the bridge over the Michigan Central Railroad and the bridge over the Huron river, which location was afterwards approved by the Common Council. The report of your special committee to the Board on May 2nd, 1917, and by the Board referred to the Common Council, suggested the investigation of Mr. Wagoner's plant and bid which bid was the lowest received and amounted to \$9,700.00. This matter was referred by the Council to a committee of three appointed by the Council which together with a committee of three appointed by the Board of Public Works recommended that the voters be asked to vote the sum of \$10,000.00 for the construction of a garbage disposal plant. This bond issue was voted down at the special election held on June 25, 1917, at which time it failed by 96 to secure the necessary three-fifths vote. After that time a proposition was received from Mr. Wagoner, who was the low bidder under the above proposition, that he would erect his own disposal plant and collect and dispose of the garbage in the City of Ann Arbor, by burning it in same, under a five year contract for the sum of \$6,000.00 per year or \$30,000.00 total. At the expiration of this contract the plant which he constructs is to become the property of the City of Ann Arbor. After due deliberation such a contract was entered into. Mr. Wagoner has completed his plant on the old "pest-house" property and is now collecting the City's garbage. The total cost

in this department for work in connection with this matter, expenses of your city engineer and members of the Board of Public Works and the Common Council and a survey of the "pest-house" site on Fuller St. have totaled \$184.66 of which \$20.16 was spent during the year 1916, as shown in my report for that year, leaving the net amount spent during 1917, \$164.50.

Barn at City Yards: This matter is still under your advisement and in exactly the same condition as shown in my report for 1916, no additional amount having been spent on this project during 1917.

Sealing Boiler Room in City Hall: From the coal bunkers and boiler room in the City Hall, coal dust and dust from the operation of the boiler rises into the rooms above, causing continual annoyance and considerable expense for redecorating the building at more frequent intervals than would otherwise be necessary.

In order to prevent this, it has been decided that this boiler room and coal bunker should be sealed in such a way that the dirt cannot enter the rooms above. It is also necessary in order to increase the efficiency and effectiveness of the heating system in the city building that the main riser, from the boiler to the place where it divides into two horizontal mains, be increased from 4-inch to a larger size. The specifications for this work were prepared at a total cost of \$4.88 but because the season's supply of coal was placed in the coal bunker before bids were received the matter was postponed until another season.

Sidewalks and Curbing Grades: Sidewalks in all cases and curbing except in paving districts are paid for by the property owners abutting, this department furnishing the line and grade for same. A large amount of sidewalk building was done this year, due principally to the activity of the Sidewalk Committee in having ordered sidewalks where they were very necessary and where they probably would not have been built unless they were ordered by the Common Council. The total cost for this work during the past year has been as follows:

Sidewalk grade	\$376.30
Curb grades	97.69

Total	\$473.99
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This work has been scattered in all parts of the city. The above cost would have been much greater had it not been for the automobile which

facilitates transportation from one part of the city to another and makes possible the carrying on of this work with a smaller number of men than otherwise.

SUMMARY OF YEARLY COST OF ALL NEW PUBLIC WORK.

The cost to the city and special assessment districts of all new improvements completed this year, payment for which has been made through this office, has been as follows:

Cost of sewers and pavements as per previous summary	\$58,919.23
Repaving E. Huron street..	7,812.93
Grading on Seventh street..	2,566.50
Opening Hoover Avenue...	2,144.23

Total	\$71,442.89
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Of the above amount \$7,283.49 was spent in 1916 on work not completed until 1917. In 1917 there has been about \$32,105.05 on the Broadway bridge which is not as yet completed. This leaves a net amount paid through this department for public work during the past year, exclusive of payments retained on contracts, \$96,264.45. Broadway bridge, when completed will cost about \$50,000.00 and is the only uncompleted work now under contract. All of this work, which is by far the greatest amount of public work done in any one year by the City of Ann Arbor, has been designed, laid out, superintended, inspected, etc., by this department.

In addition to this great amount of work contracted for and completed, we have designed and prepared specifications for Allen's Creek storm sewer which when completed will cost close to \$200,000.00, and have done other special work as enumerated in the preceding pages.

GENERAL.

Steere Farm Maintenance: It has been the contention of Mr. J. B. Steere, for some time, that an error was made in the deeding of the Steere Farm property to the City of Ann Arbor which resulted in his losing pay for some thirteen acres of land. Because they saw the justice in his contention, and because of the possibility to trade lands which were better for the city's purpose in collecting water, the matter of making such an exchange with Mr. Steere was referred to the City Attorney and myself to prepare deeds. We decided that before such deeds could be properly prepared a complete survey of the Steere Farm lands as they are now owned by the city, was necessary. This sur-

vey has cost to date \$66.00. It is practically completed and the trade with Mr. Steere will soon be effected.

Assessor's Plats For City: As related in my report for 1916, we had been ordered to prepare Assessor's plats for all unplatted property within the city limits now being sold in lots. In 1916 \$59.22 was expended on this work and during 1917 an additional sum of \$52.94 was expended. As soon as the records of our Sanitary sewers, which we are preparing for the State Sanitary Engineer, are completed, we expect to push this work more vigorously.

Building Code: At the request of the Ordinance Committee a complete building code for the City of Ann Arbor was prepared in this department at a cost of \$7.88. It has been submitted to the City Attorney and after being reviewed by him, will be taken to the Ordinance Committee for their consideration.

Municipal Lighting: Repairs to the down town boulevard lighting system which is owned by the city, having been presented to them by the merchants, and which is being operated under contract with the Detroit Edison Co., cost \$36.01. The cleaning and maintenance of the lamps and globes is part of the Detroit Edison Co.'s contract, but these particular repairs were made to wiring in switch boxes.

Tools, Machinery and Supplies: One car of sewer pipe was purchased and stored at the city yards for general use at a cost of \$205.48.

The computation of bids and other matters in connection with receiving bids and the purchase of tools, machinery and supplies for general purposes, amounted to \$11.20.

Work for Other Departments: For the Street Department, including the sewer connection to drinking fountain at the corner of Main St. and Madison St. curb repairs on Liberty St., work on Crest Ave., Edwin St. and Gott St. work amounting to \$12.53 was done by men in this department.

For the Board of Water Commissioners, during the past year, this department has furnished labor for flushing hydrants, inspecting the ditch for twelve-inch water main constructed through the western and southern parts of the city, designing a retaining wall to be built between the property of the city and that of W. H. Murray just east of Seventh St. and building a manhole on E. Huron St. The cost of same has amounted to \$15.66.

For the Board of Park Commissioners, in addition to the bridge at Island Park heretofore reported upon, considerable surveying was done in West Park, Long Shore Drive, Felch Park and Burns Park. The total cost of work for this department was \$49.69.

Automobile: On Feb. 19th, you recommended to the Common Council that they trade in the Ford car belonging to the city in use by this department for a new car of the same kind. This recommendation was rejected by the Common Council and we have, therefore, used during the season 1917, the car purchased for us in April, 1916. The car has been run many thousand miles during the year and the total cost in connection with same has been distributed as follows:

Tire repairs	\$147.09
General repairs	171.09
Cleaning and oiling	18.42
Gasoline and oil	152.74

Total	\$489.34
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From a comparison with our last year's report, in which we reported the total cost of our machine, including the trade cost of \$179.51, to be \$445.33, you may see that an automobile, which is used as constantly and run as far in any one season as is the car of this department, should be, for the sake of economy, exchanged each year for a new car. We would therefore recommend that such a trade be made as soon as warmer weather and better roads prevail.

The automobile is one of the greatest assets of our department and had it not been for its use, the expenses of the department for labor would have run higher than they have by an amount considerably exceeding the cost of the automobile.

Engineer's Office: The amount chargeable directly to the running of your City Engineer's office this year, including all equipment and supplies purchased and all that part of my own time and the time of my assistants devoted to the several duties listed below has been distributed as follows:

Office accounts	\$ 102.44
Records, Engineer's office...	391.35
Correspondence	203.22
Reports, monthly and annual	141.05
Council, Board and Committee meetings	148.12
Inspecting plumbing and laying tile	16.03
Numbering houses	8.32

Information to public	832.16	H. H. Phillips.....	31.50
Information received from		A. A. Burrell.....	30.00
others	28.62	H. A. Taylor.....	30.00
Engineer's office, cleaning		Geo. Walterhouse.	27.00
and arranging	29.99	R. S. Scott.....	25.50
City yards and shed, cleaning		A. L. Quackenbush	24.15
and arranging	8.61	W. C. Russell.....	21.30
Supplies, Engineer's office...	339.23	Geo. Bleekman...	19.80
Equipment, Engineer's office	163.81	E. C. Smith.....	19.65
Supplies, surveying	145.57	John Stewart.....	19.35
Equipment, surveying	108.79	H. C. Worfel.....	11.85
Sickness and vacations	179.98	M. E. Webster....	17.70
Directing work of depart-		F. D. Coughlin....	11.10
ment	592.55	R. J. Ernst.....	12.00
Conventions and society		E. R. Weeber.....	11.10
meetings	59.55	N. C. Barnes.....	10.80
		M. S. Charlton....	10.17
Total	\$3,499.40	E. Young.....	4.80

The total cost of all labor for engineering, inspection and sewer and other work is shown on the summary of my twelve monthly reports given on the following page.

The total of all payments to contractors is also shown in a table following:

SUMMARY OF EXPENDITURES

FOR LABOR DURING 1917.

Engineering:

Manley Osgood ...	\$1,800.00
G. H. Sandenburgh	1,190.00
E. F. Lutz.....	368.90
F. E. Williams....	267.98
O. C. Klager.....	201.15
H. L. Stanger.....	173.10
E. D. Glatzel.....	164.25
W. B. Russell.....	147.89
O. Bonney.....	101.25
A. Hassan.....	75.45
R. H. Paquette....	66.45
H. J. Schlee.....	66.15
M. W. Hyde.....	70.35
T. C. Hill.....	63.60
D. Drake.....	66.00
N. W. Paquette...	47.85

Inspecting:

F. L. Feiner.....	\$1,165.75
H. E. Lueck.....	318.50
E. R. Seavolt.....	160.40
J. C. Stewart.....	159.25
H. H. Person.....	352.00
C. T. McIntyre....	261.00
H. R. John.....	113.75
J. W. Raynsford..	94.50
R. A. Dodge.....	83.75
F. Haskins.....	63.00

\$ 2,771.90

Sewer And Other Work:

Julius Loehrke...	\$ 880.00
St. Comm'rs Rolls.	1,523.49

\$ 2,403.49

Total \$10,404.06

SUMMARY OF PAYMENTS TO CONTRACTORS DURING 1917.

Contractor	For	Amount
R. D. Baker, Sewer District No. 71.....		\$13,006.93
Wm. Eddy & Son, Sewer District No. 75.....		1,562.81
Hochrein & Co., Sewer District No. 76.....		207.63
Hochrein & Co., Sewer District No. 80.....		377.21
Wm. Eddy & Son, Sewer District No. 81.....		162.61
Wm. Eddy & Son, Sewer District No. 82.....		3,830.42
Hochrein & Co., Sewer District No. 83.....		303.15
Wm. Eddy & Son, Sewer District No. 84.....		6,666.43
Hochrein & Co., Sewer District No. 85.....		1,828.99
Hochrein & Co., W. Jefferson St. storm sewer.....		1,599.91
Hochrein & Co., W. Madison St. storm sewer.....		2,524.65
Wm. Eddy & Son, Arch St. storm sewer.....		165.54
Wm. Eddy & Son, Cambridge Rd. and Baldwin Ave. storm sewer..		3,729.13
Wm. Eddy & Son, State St. and Dewey Ave. storm sewer.....		11,396.72
J. C. Stewart, Repaving East Huron St.....		3,703.13
Wm. Eddy & Son, So. University Ave. storm sewer.....		1,327.83
J. P. Rusche, Broadway bridge.....		30,732.44

A. H. Prange, 5 percent retained.....	352.33
Hochrein & Co., 5 percent retained.....	30.51
Hochrein & Co., 5 percent retained.....	50.61
Wm. Eddy & Son, 5 percent retained.....	58.08
Wm. Eddy & Son, 5 percent retained.....	40.04
Hochrein & Co., 5 percent retained.....	125.06
Wm. Eddy & Son, 5 per cent retained.....	28.54
W. E. Tench, grading Seventh St.....	2,566.50
Ann Arbor Railroad, Gates and Crossing on Hoover Ave.....	2,144.23
Total	\$88,521.43

ADDENDUM

Recommendations: One of the greatest needs of the city is the supervision of building construction. This has been taken up by the Ordinance committee and will in all probability be soon controlled by ordinance. Another great need is the inspection of backfilling of street excavations made by plumbers and corporations as well as the inspection of sidewalks constructed under contract for the city. An arrangement could be made whereby such inspections would be no burden on the city whatever, but it would insure the saving of considerable amounts in the proper maintenance of streets and would result in much greater satisfaction to the property owners in the construction of sidewalks.

The city is now operating six Ford cars and the expense for repairs and garage service amounts to a considerable sum. A place has just been made available in the shed at the rear of the Fire station, due to motorizing the Fire Department, and I would most earnestly recommend that it be fitted up for a municipal garage and an arrangement made whereby all city cars can be kept there every night and given whatever attention they need during the night to put them in the proper condition for use the next day. This would not only be a saving of considerable money but it would be a great accommodation to all city departments. In this way also an accurate account could be kept of the cost of each car for comparative purposes and, due to the centralized buying, a considerable sum might be saved on tires.

The City has been hampered for several years past by the charter provision which allows only \$150,000.00 of outstanding paving bonds at any one time. This year for the first time they have been hampered in the same way by the charter provision which allows only \$40,000.00 of outstanding

sanitary sewer bonds at any one time. Such limitations, especially in normal times, are a very serious hindrance to the proper growth and development of our City. These matters should receive the attention of the Common Council committee now engaged in charter revision.

We wish here to repeat the recommendation made in the body of our report that the Ford car owned by the City and in use by this department since April, 1916, be traded for a new car of the same kind.

Much objection has been found during the year to the work necessary to have a street oiled and, if the same ordinance is kept in effect during the coming year, it will have a tendency to discourage oiling of graveled roadways to a large extent. The Ordinance Committee now has the matter under advisement and probably some revision will be made.

Comparison: We cannot refrain from again calling to your attention the great amount of public work done during the past year. As shown in the preceding table, the payments to contractors alone amounts to \$88,521.43 and the cost of all public work completed during the year, together with the cost of work which has been started but not completed, amounts to \$96,264.45. Yet with all this, the cost for engineering labor has been nearly \$800.00 less than during the year 1916. Quite naturally, the cost of inspection has been greater during 1917 than the cost during 1916, due to the greater amount of contract work which has been handled. The cost of sewer and other work during 1917 exceeds that during 1916 by about \$630.00 due principally to work which was found necessary in replacing a section of the main sanitary sewer at a cost, during 1917, of \$851.25. We believe that this is a record which will stand favorably against a similar record in any other city in which the same standard of work and service is maintained and the same amount of work handled.

SUMMARY OF SANITARY SEWERS IN THE CITY OF ANN ARBOR

District No.	Street	Date	Total length of Main	No. Manholes	No. Flush- tanks	No. Lightholes	8-in. Tile	10-in. Tile	No. of House Connections	Length of House Conn.	Flushtank changed to Manhole	Total Cost
	Main sewer	1893					(No Record)					\$ 41,252.83
1	Liberty, E. of main sewer	1894					(No Record)					3,954.44
2	Washington, E. of main sewer	1894					(No Record)					6,831.08
3	Hill st., district E. of main sewer	1895					(No Record)					27,912.80
4	Huron, E. of main sewer	1895					(No Record)					4,303.19
5	William, E. of main sewer	1895					(No Record)					8,454.98
6	Detroit	1897					(No Record)					12,587.00
7	W. Liberty, to near Seventh	1897	1804	5	1	5	1804		66	998		1,887.84
8	E. Catherine, Division to State	1900	631	1	1	1	631		22	256		527.43
9	Ann, Huron, 13th and 14th	1901	1370	4	2		1370		50	988		2,163.46
10	14th and Volland	1901	1266	3	1		1266		35	630		1,541.47
11	First, Madison to Jefferson	1903	918	3	1		613	305	27	508		1,169.51
12	W. William st.	1903	1527	4	1		583	344	40	678		2,083.02
13	Beakes, 4th av., 5th av., Kingsley	1904	4204	8	7		2706	1498	137	2316		5,024.40
14	N. Main, main sewer to Catherine	1905	1393	3	2		1393		69	1444		2,322.48
15	Cambridge, Washtenaw, Vinewood, Ferdon	1905	1487	4	2		1487		28	707		1,735.64
16	W. Liberty, extension to city limits	1906	1352	3	1		1352		40	726		1,265.68
17	3rd, William to Jefferson	1906	602	1	1		602		19	328		590.84
18	W. Huron	1906	3509	8	1		2942	567	102	2066		4,111.52
19	Church	1906	444	1	1		444		22	376		574.76
20	Miller av.	1906	2224	9	1		1737	487	57	987		2,147.27
21	Spring, Miller to Hiscock	1907	1252	4			688	564	* 32			1,070.92
22	W. Washington and 3rd	1907	2834	8	2		2834		* 88			2,369.03
23	S. Division—(note)	1906	200	1			200		8	160		250.00
24	Geddes ave., Hill and Oswego	1907	1730	5	2		1730		* 30			1,530.50
25	State and Dewey av.	1907	3134	3	2		2882	242	* 88			2,186.57
26	Broadway and Wall st.	1907	5682	20	2		3571	2111	* 143			4,989.01
27	Second Ward	1908	11470	24	13		3540	1930	* 337			8,035.98
28	Belser, Observatory, Volland	1907	2380	4	3		2380		* 39			1,895.50
29	Spring st. extension	1908	896	3	1		896		* 26			632.32
30	E. Catherine and Clark	1908	1498	3	2		1498		* 38			1,148.36
31	Fuller and Elizabeth	1907	1080	2	2		1080		* 22			943.60
32	S. Main, Mosley, Ashley	1909	3679	8	3		3108	571	* 98			2,229.03
33	Arch, White, McKinley	1909	1458	3				1458	* 58			513.49
34	Packard, Granger, Ferdon	1909	10128	27	7		7030	3098	* 376			6,300.06
35	Second, William to Liberty	1909	321	2	1		321		* 12			240.69
36	N. 5th av. and E. Summit	1910	891	2	2		891		* 27			741.30
37	Cambridge, Washtenaw to Hill	1910	1200	3	2		1200		* 34			911.39
38	Hill Division to Main	1910	1320	3	1		1320		* 40			1,037.00
39	Fuller, Glen to State	1910	1197	3	1		1197		* 19			815.93
40	Ashley, Kingsley to Ann	1910	771	2	1		771		* 30			667.77
41	Felch, Fountain, Hiscock, Chapin and Cherry	1910	4070	8	6	4	3328	742	* 122			3,229.79
42	W. Main, to near Michigan	1911	152	1	1		152		* 12			1,500.82
43	W. Main, to near Michigan	1911	152	1	1		152		* 12			1,500.82
44	W. Main, to near Michigan	1911	152	1	1		152		* 12			1,500.82
45	W. Main, to near Michigan	1911	152	1	1		152		* 12			1,500.82
46	W. Main, to near Michigan	1911	152	1	1		152		* 12			1,500.82
47	W. Main, to near Michigan	1911	152	1	1		152		* 12			1,500.82
48	W. Main, to near Michigan	1911	152	1	1		152		* 12			1,500.82
49	W. Main, to near Michigan	1911	152	1	1		152		* 12			1,500.82
50	W. Main, to near Michigan	1911	152	1	1		152		* 12			1,500.82

SUMMARY OF PAVEMENTS IN THE CITY OF ANN ARBOR

District No.	Street	When laid	No. sq yds.	Total Cost	Total Cost per sq yd.	Cost per sq. yd. pavement only	Kind
1&2	Main	1898	12,730	\$ 31,375.15	\$2.46	\$1.64	Brick on concrete
3	Washington,						
	Ashley to 5th av.	1899	5,140	11,645.17	2.27	1.73	Brick on concrete
4	Huron, Ashley						
	to State	1900	10,791	27,845.38	2.58	2.17	Asphalt block on sand
5	State Huron						
	to Monroe	1902	12,484	31,778.98	2.55	2.16	Asphalt block on sand
6	Ann, Main to						
	Fourth av.	1902	1,589	2,860.70	1.80	1.39	Brick on sand
7	Liberty, Ashley						
	to State	1903	9,140	24,486.06	2.68	2.19	Asphalt block on sand
8	Fourth av.,						
	Huron to Liberty	1903	2,431	6,490.80	2.67	2.19	Asphalt block on sand
9	William	1907	7,519	19,092.01	2.54	2.03	Bithulithic
10	N. University	1905	5,045	10,720.16	2.03	1.63	Brick on concrete
11	Alley	1908	350	672.74	1.92	1.50	Brick on concrete
12	Maynard	1909	1,883	1,930.13	1.03	.78	Ann Arbor tar-concrete
13	N. Fourth av.,						
	Huron to Ann	1910	1,159	1,351.34	1.17	.88	Ann Arbor tar-concrete
14	E. Huron and						
	Twelfth	1910	6,765	6,635.50	.99	.76	Ann Arbor tar-concrete
15	washington,						
	5th av. to 12th	1910	8,633	8,189.73	.95	.71	Ann Arbor tar-concrete
16	Washtenaw av.	1911	12,092	12,392.81	1.03	.78	Ann Arbor tar-concrete
17	State, Packard						
	to Arch	1911	2,587	2,672.49	1.03	.84	Ann Arbor tar-concrete
18	S. Main and						
	Packard	1911	20,826	23,172.05	1.11	.78	Ann Arbor tar-concrete
19	N. Main, Cather-						
	ine st. north	1911	10,117	11,110.86	1.10	.82	Ann Arbor tar-concrete
20	Hill and Oswego	1913	5,682	7,726.41	1.36	.93	Ann Arbor tar-concrete
21	Fifth av.	1911	10,483	11,378.31	1.12	.84	Ann Arbor tar-concrete
22	Alley	1911	293	314.84	1.07	.84	Ann Arbor tar-concrete
23	Alley	1911	920	1,029.38	1.12	.77	Ann Arbor tar-concrete
24	Arch and Thayer	1911	1,833	1,747.35	.95	.77	Ann Arbor tar-concrete
25	State, Monroe						
	to Packard	1911	3,158	3,181.57	1.01	.78	Ann Arbor tar-concrete
26	Mary	1912	2,407	2,703.08	1.12	.89	Ann Arbor tar-concrete
27	Ashley	1912	7,711	9,071.92	1.18	.91	Ann Arbor tar-concrete
28	W. Liberty, Ash-						
	ley to city limits	1913	15,612	20,836.90	1.34	.98	Ann Arbor tar-concrete
29	W. Huron st.,						
	Ashley to Forks	1913	14,131	19,257.61	1.36	1.01	Ann Arbor tar-concrete
30	Church, Washte-						
	naw to Prospect	1914	11,832	14,802.93	1.25	.98	Ann Arbor tar-concrete
31	Hill st., State st.						
	to Washtenaw av.	Not Completed					
32	Ann st., Main st.						
	to First st.	1915	2,085	2,740.80	1.33	1.02	Reinforced concrete
33	Jefferson st., 5th						
	av. to State st.	1915	4924.2	8,665.40	1.62	1.30	Asphaltic concrete
34	Division st., De-						
	troit to Packard	1915	14372.5	24,733.97	1.60	1.29	Asphaltic concrete
35	Geddes ave., Ox-						
	ford to Oswego	1915	3273.0	5,431.55	1.66	1.19	Reinforced concrete
36	Catherine st. and						
	Miller av.	1916	9,596	22,629.31	2.36	1.95	Brick on concrete base
Totals			239592.7	\$391,023.39			

NOTE—The pavement between the rails of the street car track on Washtenaw ave. and between the rails and for a distance of 18 inches out on either side of the track on Packard and Main streets is of brick on concrete and is not included in the above statement.

NOTE—The pavement between the rails of the street car track and for a distance of 18 inches out on either side of the track on W. Huron St. is of brick on concrete and is not included in the above statement.

STREET COMMISSIONER'S REPORT

Office of the Street Commissioner, Ann Arbor, Mich., Jan. 8, 1918.

Hon. Board of Public Works, Andrew Reule, President: Gentlemen—I herewith present the annual report of the Street Department for the year ending December, 1917, including care of streets and sidewalks, building and repairs of sidewalk extensions, crosswalks, inlets, etc., and gravel, cement and other materials used.

STREET WORK—

Cleaning paved streets, labor and teams.....	\$2501.97	
Gasoline for motor sweeper—		
796 gals, city supply, @ 22½c	179.10	
Bought elsewhere:		
166 gals. Kalamazoo..	\$40.67	
22 gals. locally.....	5.06	45.73
Water, 91,440 gals. @ 10c per M gals.	9.15	
Hand brooms for street cleaning	27.00	
Repairs and supplies for motor sweeper	67.71	
Labor, repairs on motor sweeper	90.12	
Material and brooms for motor sweeper...	\$285.56	
Labor, making brooms 175.78	461.34	\$3382.12
Horse sweepers, bamboo and supplies	\$27.67	
Labor, making brooms.....	53.39	81.06
Cleaning leaves from paved streets	638.17	
Taking care of snow—		
Cleaning snow from crosswalks and gutters.....	\$260.38	
Plowing snow from sidewalks	209.00	
Drawing snow from streets	6.49	
Plowing snow from gutters	67.91	
Sanding	2.59	
Salt	3.85	550.22
Oiling streets—		
Sweeping	\$ 63.50	
Cleaning gutters	7.94	
Scraping	\$36.60	
Sanding	19.33	55.93
Oiling	168.24	
Oil, \$1802.72; freight on same, \$281.00	2083.72	
Repairs, etc., at oil tank...	68.20	2447.53

Number of streets or sections petitioned for and oiled, 51.

(Total amount paid City Treasurer by property owners for oiling, \$1,922.11.)

Paving repairs, labor	\$604.43	
1090 brick @ \$10 per M....	20.90	
353 sacks cement, 88.25 bbls. @ \$1.77	156.20	
8½ loads sand @ 25c.....	2.13	
1½ loads gravel @ 35c	25.90	\$809.56
Grading streets with scraper and street drag	\$844.48	
Grading, graveling and patching dirt streets, labor	\$2660.99	
1630 loads gravel	499.00	
221 loads @ 15c.....	\$33.15	
32 loads @ 20c.....	6.40	
225 loads @ 25c.....	56.25	
1152 loads @ 35c.....	403.20	

3070.59

10.60

52 loads cinders

Tarring streets—

Sweeping and sanding \$100.23

Tarring 70.99 | |

Hauling sand 137.99 | |

149 loads sand 154.25 | |

Tarvia	903.87	
Supplies for tar tank, etc..	22.52	1389.85
Graveling—		
Pontiac street	\$167.08	
1st, William to Miller ave., Ashley between William and A. A. R. R., 2nd between Jefferson and Liberty st.....	474.53	
7th st., Davis ave. to Madison st.	222.06	
Grading and graveling Geddes ave., east of Oswego st.	154.37	
Gravel used on Pontiac, Ashley, 2nd and 1st streets—		
441 loads @ 15c.....	66.15	1084.19
Cleaning gutters on dirt streets..	1927.16	
Cleaning leaves from gutters, dirt streets	391.20	
Mowing weeds from streets and lawn extensions	440.73	
Grading dirt streets—		
Grading and widening 7th st. south of Madison st.....	\$42.88	
Felch, 1st to A. A. R. R.....	26.17	
Grading and filling 5th st. south of Madison.....	95.85	
Forest at Woodlawn.....	12.00	
S University, Monroe, East University	8.16	
Fuller street	15.27	
Pontiac and Wright streets..	105.15	
Woodlawn	61.37	
Forest and Wells	17.36	\$384.21
Opening Edwin street (Hoover ave.) between Division and Greene streets across A. A. R. R. tracks—		
Tearing down shed, labor..	\$37.10	
Moving building Compact plant (contract)	\$75.95	
Moving building, plumbing bill	34.17	110.12
Digging ditch and laying tile, (culverts), labor..	27.67	
Tile	85.00	
Cement wing walls, culvert, contract, 202.7162 cu.ft.	81.09	193.76
Grading and filling Hoover avenue, labor	328.75	
631 loads filling from Hoover Steel Ball Co. @ 20c..	126.20	454.95
Grading for sidewalks, labor	41.00	
Sidewalks between Division st. and railroad on north and south sides; and between Hoover property and Greene street on north side: 987.15 lin. ft., 4738.63 sq. ft. contract	661.59	1498.52

Total Street work

CULVERTS—

Repairs culverts—

Railing culvert, Spring st., pipe and labor	\$51.01	
2 sacks cement, ½ bbl. @ \$1.77 .....	.89	
1 load gravel .....	.35	\$52.25
Cleaning culverts	1.88	
Extension culvert N. Main, east and west, 435.63 cu. yds. cement work	\$123.83	
14 loads gravel, 1 load sand, furnished	22.50	
14½ bbls. cement and drayage, 27.92		
Hauling for culvert N. Main st., 4.67	178.92	
(Walls culvert Hoover avenue between Division and railroad. See opening Edwin street.)		

Total Culvert work

SIDEWALKS—

Grading for sidewalks at various

points	\$ 314.04	labor and materials..	\$189.77
Grading for sidewalks east and west sides N. Main st., between A. A. R. R. and city limits.....	1369.18	Watchman Broadway bridge	572.84
Repairs sidewalks (C. M. Thompson & Son), 2 pieces, 9.7 lin. ft., 52 sq. ft.	6.24	Night watchman Broadway bridge ...	52.00 814.61 827.43
Sidewalks built by city under contract—		Total Extensions, Crosswalks, etc.,	\$5,105.68
For property owners (by C. M. Thompson & Son)—58 pieces, 4,588.73 lin. ft., 24,304.282 sq. ft....	3325.79	INLETS STORM WATER SEWERS, etc.	
(By Thomas Hession)—3 pieces, 237.25 lin. ft., 1186.25 sq. ft.....	133.73	Repairs and cleaning inlets, gutter boxes, laying tile, etc., labor.....	\$191.94
For city—(by C. M. Thompson & Son)—Front 12th st. north of Catherine, 1 piece, 66 lin. ft. 330 sq. ft.	\$39.60	2 pieces 12 in. tile	8.16
Engine house, Huron st., 1 piece, 15 lin. ft. 165 sq. ft.....	\$24.75	11 pieces 15 in. tile	9.90
Front 1st st. south of Felch, one piece, 57 lin. ft., 360.02 sq. ft.	\$48.20	5 sacks cement, 1.25 bbl. @ \$1.77..	2.22
Total 3 pieces, 138 lin. feet, 855.02 sq. ft.	112.55	135 bricks @ \$1 per M.....	1.35
(Hoover avenue sidewalks, built by city. See Opening Edwin st.)		Tile bought locally	48.44
Total Sidewalk work	\$5261.53	Total inlets, Storm Water sewers, etc.	\$262.01
SIDEWALK EXTENSIONS, CROSSWALKS, ETC.—		GENERAL WORK AND REPAIRS—	
Building sidewalk extensions, crosswalks, cement culverts, etc., labor, \$2156.60		Miscellaneous work and repairs...\$	91.17
110 loads gravel @ 40c \$44.00		Taking ashes from City Hall basement	24.73
68 loads gravel @ 35c 23.80	67.80	Handling coal for Poor Master (not including city team)	11.97
55½ loads sand @ 25c... 13.88		Repairs coal shed for Poor Master..	5.10
102 loads filling @ 20c..... 20.40		Handling empty cement sacks	12.33
766 sacks cement, 191.5 bbls. @ \$1.77	338.96	Pump and well 5th ward, labor, \$6.35	
Lumber	65.32	Pump and fittings	14.53 20.88
Culvert irons	263.05	Work on municipal exhibit	3.18
Crossing plates	9.65	Unloading and hauling tile	9.96
11,491 old brick @ \$10 per M 114.91		Cutting wood at city yard	16.92
7918 new brick @ \$21 per M 167.60		Taking out trees in streets.....	5.85
930 old asphalt blocks @ \$5.00 per M	4.65 \$3222.82	Repairs tools and machinery.....	21.53
Sidewalk extensions laid by Contract:		Setting signs for Police department	7.92
By C. M. Thompson & Son—20 pieces 240.75 lin. ft., 1726.357 sq. ft.....	\$205.58	Lettering and setting rubbish cans, labor, etc.	\$20.45
By Thos. Hession—5 pieces, 43 lin. ft., 221.9 sq. ft.	25.23	Pipe for setting cans	15.59 36.04
By E. C. Layton—1 piece, 34.35 lin. ft., 264.66 sq. ft.	31.76	Relief work for cyclone sufferers..	92.45
By W. Koebnick—1 piece, 32 sq. ft.	5.76 268.33	Total General Work, etc.	\$360.03
Curbing set:		SUPPLIES, REPAIRS, ETC.—	
By C. M. Thompson & Son—three pieces, 75.9 lineal feet	\$37.95	General bills.....	\$1624.23
By W. Koebnick—one piece, 4 lineal feet	2.00 39.35	Maintenance city team:	
Cleaning crosswalks	60.00	Hay, oats, shoeing, repairs harness, etc.	\$282.62
Unloading cement	21.52	Labor at city yard	5.89 288.51
Cleaning bridges	5.06	Gasoline used by Street Department runabout, 522 gals. from city supply @ 22½c	117.45
Hauling brick E. Huron street to city yard	25.50	Total Supplies, etc.	\$2030.19
Unloading and hauling brick for E. Huron st. paving	323.13	RECAPITULATION—	
Unloading city car of brick.....	21.68	Street work	\$18,939.59
Building pit for city scales, repairs paving, etc., labor.....	\$195.26	Culverts	233.05
187 sacks cement, 46.75 bbls., @ \$1.77	82.75	Sidewalks	5,261.53
35 loads gravel @ 35c.....	12.25 290.26	Sidewalk extensions, crosswalks, etc.	5,105.68
Repairs bridges:		Inlets, laying tile, etc.	262.01
Repairs No. 3 bridge, labor, \$ 2.58		General work and repairs	360.03
Plank	10.24	Supplies	2,030.19
Total	\$12.82	Total	\$32,192.08
Bridge No. 1 (Broadway):		Culverts repaired	1
Planking temporary bridge,		Culverts extended	2
		Crosswalks built	21
		Sidewalk extensions built (by city)....	90
		Sidewalk extensions built (by contract)	27
		Crosswalks repaired and relaid.....	84
		Sidewalk extensions repaired	15
		Gutter boxes built	23
		Storm water culverts at intersections..	14
		(About 476 lineal feet)	
		Cement sidewalks built by city under contract—	
		For property owners	61
		(4825.98 lin. ft., 25,490.532 sq. ft.)	
		For city	3
		(138 lin. ft., 855.02 sq. ft.)	
		Hoover avenue opening	3

(987.15 lin. ft., 4,738.63 sq. ft.)
Grand total: 5,951.13 lin. ft., or 1.108
miles, 31,084.182 sq. ft.

Sidewalks repaired (by city).....	3
Sidewalks repaired (by contract).....	2
Brick sidewalk built by city (for Water department)	1
Pieces of curbing set (by contract)....	4
Notices served—	
To repair sidewalks	210
To remove obstructions in streets.....	25
To observe street regulations.....	11
To cut weeds	6
To clean snow	1

Total

GRAVEL ACCOUNT—

Graveling and patching streets in the several wards	1630
Special streets noted	441
Opening Edwin st. (Hoover ave.)....	631
Culverts	15
Scale pit	35
Extension and crosswalk work:	
Gravel	178
Filling	102
Paving repairs	74

Total loads

CEMENT ACCOUNT—

On hand Jan. 1, 1917.....	14.25
Bought during 1917	405.00

Total

Used in 1917:

Extension and crosswalk work.....	766
Paving repairs	353
City Engineer's department.....	132
Inlets, etc.	5
Culvert repairs	2
T. Hession, culvert N. Main.....	58
Sold E. Huron paving contractor	85
Scale pit	187
Sold sidewalk contractor, etc....	74

Total

On hand Jan. 1, 1918

Total

Respectfully submitted: A. J. PAUL,
Street Commissioner.

INVENTORY—STREET DEPT.—

1 broom filling machine	\$ 5.00
1 log chain	2.00
1 road scraper	258.00
1 motor sweeper	3,558.00
1 plow	15.00
1 oiler	608.00
1 hammer	1.00
4 tons hay	64.00
40 bu. oats	32.00
1 team horses	150.00
1 double harness	20.00
Horse blankets	12.00
Stable blankets	3.00
Steam road roller	500.00
2 horse street sweepers	200.00
1 tin pump; 1 large pump	10.00
1 pair bobs	20.00
Stencil and alphabet	1.00
1 hack	5.00
1 road scraper	75.00
19 wood snow plows	95.00
2 patent snow plows	25.00
1 steel snow plow	10.00
1 60-gal. oil can	4.00
3 small oil cans .....	.60
2 galv. tin pai's .....	.50

1 two-horse mower	5.00
1 large tar tank on wheels	45.00
1 sand wagon	15.00
1 small tar tank on wheels	100.00
Tar tank and boiler (near Gas wks.)	1,200.00
50 ft. hose	2.50
Sidewalk building outfit	4.00
1 patent street drag	20.00
1 street drag	10.00
1 lot sewer jacks	5.00
1 rooter	5.00
5 street brushes	5.63
Stencil for marking concrete.....	4.00
3 barley forks	1.50
1 lot old fire hose	5.00
1 grindstone	2.00
1 hoe .....	.40
1 stone hammer .....	.70
3 snow shovels	1.50
1 pipe spade .....	.40
2 old wood trowels .....	.25
Creasers and edgers .....	.75
Steel trowels .....	.75
3 hatchets	1.50
4 horse sweeper brooms filled.....	40.00
5 spindles for horse brooms	5.00
1 ladder	1.00
450 lbs. bamboo splints	49.50
1 motor sweeper brooms filled....	100.00
1 lot bolts .....	.20
Paint brushes .....	.50
2 sand screens	1.00
1 cross-cut saw; 1 one-man saw...	2.50
1 sprinkling tank	150.00
2 dump wagons	150.00
3 carts	60.00
1 bolt cutter	1.00
9 red lanterns	5.40
1 brace and bit	1.00
1 iron; 3 wood, levels.....	2.00
4 wheelbarrows	11.00
10 grubhoes with handle, 7 without	6.75
3 scythes and handles	3.00
3 combined pick and grubhoe	2.25
1 sidewalk roller	5.00
1 iron vice and bench	3.00
Set platform scales (at Fire house)	500.00
1 tool box on wheels	20.00
1 batch cement mixer	100.00
4 slip scrapers	20.00
1 two-wheeled scraper	15.00
1 square wood tamper	1.00
3 hand saws	3.00
3 tool boxes	9.00
2 mortar boxes	2.00
2 scoop shovels	1.50
1 cement shovel .....	.50
3 iron tamers	3.00
2 wood pounders	1.00
3 paving hammers	2.00
2 mauls	1.00
7 crowbars	3.50
3 hammers	1.50
3 axes	1.50
2 shovels .....	.50
7 picks	3.50
4 street shovels	3.50
1 toilet for street use	4.00
1 lot rope	1.00
1 lot iron pipe and fittings	25.00
2 Knowell; 2 Century st. scrapers	7.00
1 tar kettle	10.00
1 Twentieth Century grader	100.00
1 tar distributor attachment	15.00
2 large hose nozzles	2.00
3 rakes	1.00
5 cold chisels	1.00
1 pliers, 75c; 2 pliers, \$1.00.....	1.75

2 pair rubber boots	3.00
1 wrench	1.00
1 wagon jack	4.00
2 post hole diggers	1.00
2 pitch forks	1.00

Total \$8,580.73

Building material, etc.—

9,000 new paving brick @ \$27.50..	\$ 247.50
10,000 old asphalt block @ \$5.00..	50.00
49 bbls. pitch @ \$4.12.....	201.88
3.75 bbls. cement @ \$1.77.....	6.64
1 lot 2x4 in. and plank.....	10.00
Old bridge timbers	15.00
1 lot wing bars for reenforcing....	10.00
300 wood paving blocks	2.00
1 lot old manhole and inlet frames	20.00
1 lot old stone curbing	3.00
16 3-in. oak plank, 350 ft. @ \$30.00	10.50
Tile—55 pc. 110' 15" @ .3375.....	37.12
17 pc. 34' 18" @ .475.....	16.15
201 pc. 402' 8" @ .1375.....	55.27
5 pc. 10' 20" @ .5625.....	5.63
6 pc. 12" L @ .75.....	4.50
21 pc. 12" Y and T @ \$1.00.....	21.50
1 pc. 18" L	1.43
1 pc. 10" Y .....	.80

Total \$ 718.42

Grand total

Correct: A. J. PAUL, Street Commissioner.

Reports of City Treasurer and City Clerk, for month of January, and an-

nual report of Board of Public Works, comprising the annual reports of City Engineer and Street Commissioner, were received and ordered to take usual course.

Resolutions.

By Ald. Lutz: Resolved, that the time for collecting taxes be extended to and including February 28th, 1918.

Adopted by the following vote:
Yeas, Ald. Heusel, Sugden, Mayer, Huss, Andres, Henderson, Donnelly, Hauser, Freeman, Lutz, Pres. Reichert, 11. Nays, none.

Moved by Ald. Heusel, that the Street Commissioner be authorized to remove, as soon as possible, the large oak tree which is in the street on Hamilton Place.

Adopted by the following vote:
Yeas, Ald. Heusel, Sugden, Mayer, Huss, Andres, Henderson, Donnelly, Hauser, Freeman, Lutz, Pres. Reichert, 11. Nays, none.

Council adjourned.

ISAAC G. REYNOLDS,
City Clerk.