

ANNUAL REPORT OF THE ENGINEERING AND PUBLIC WORKS DEPARTMENT

1957



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TO HIS WORSHIP THE MAYOR AND ALDERMEN
OF THE CITY OF FREDERICTON.

Madam and Gentlemen:

I submit herewith this report which is a statement of the work done in the various City Departments under the direct supervision of the City Engineer.

This report covers the period January 1, 1957 to December 31, 1957 and is written for the purpose of reporting to the council on the costs of the various departments for the year.

It is also written for the purpose of maintaining an accurate record on file of the activities and costs of the various departments.

During the year, along with regular maintenance, city crews and contractors constructed the following work:-

New Pavement (Diamond Construction Co.)	8,000 sq. yds.
Grit Seal (Diamond Construction Co.)	4.63 miles
Reconstruction of Gravelled Roads	2.05 miles
Grading and Gravelling	2.14 miles
New Road Construction84 miles
Concrete Curb and Gutter	3.21 miles
Concrete Sidewalk	2.55 miles
10" to 48" Surface Sewer	2.32 miles
8" Domestic Sewer	1.20 miles
4" to 14" C. I. Water Mains	2.30 miles
Extension of Culverts at Friel Creek and Grieves Creek	140 Lin. Ft.

Contractors under contract with the city in 1957 constructed or began construction on the following projects:-

Diamond Construction Co.	- 4.63 miles of city streets were sealed with RC ₃ Asphalt and $\frac{1}{4}$ " minus double-washed grit.
Diamond Construction Co.	- Completion of Booster Pumping Station on Smythe Street.
Maritime Engineering Ltd.	- Commenced construction of a 1,000,000 Imperial Gallon Reservoir in Carleton Ward.
International Water Supply Co. Ltd.	- Developed a gravel wall well on Saunders Street near Rookwood Avenue.
Forbes and Sloat Ltd.	- Constructed a 12" supply line to the 1,000,000 I. G. Reservoir location in Carleton Ward from near the new Well on Bridge Street.
Canadian Fairbanks-Morse	- Purchase of Pumping equipment
International Water Supply Co. Ltd.	- Purchase and installation of Pumping equipment for Well on Bridge Street.

Weyman Construction Co.

- Construction of a Building
to house Pumping equipment
for #2 Well on Saunders Street.

The regular expenditures for the twelve month period January 1, 1957 to December 31, 1957 appear as follows:-

	<u>Approp-</u> <u>riation</u>	<u>Net</u> <u>Expenditure</u>	<u>Debit</u>	<u>Credit</u>
Street Lights	29,000	33,101.56	4,101.56	
Public Works	20,000	21,376.41	1,376.41	
Roads and Streets	156,000	158,370.03	2,370.03	
Sanitation	59,500	60,855.60	1,355.60	
Wilmot Park	2,300	2,122.73		177.27
O'Dell Park	3,000	3,470.10	470.10	
Carleton Park	3,000	5,374.68	2,374.68	
Paint Dept.	7,500	9,192.91	1,692.91	

	<u>Revenue</u>	<u>Net</u> <u>Expenditure</u>	<u>Credit</u>
Water Pumping Station)		41,480.50	
Water Ordinary)	179,779.67	36,344.16	16,974.40
Sewerage Domestic)		11,825.47	66,974.40 - 10,000 = 56
Salaries)		13,155.14	

The City of Fredericton occupies a total of some 23.5 square miles. This square mileage excludes the water area occupied by the Saint John River within the boundaries of the City.

The preliminary report on the 1956 census shows the City's population as 18,303.

Following in the body of this report is a detailed statement of the work done, comparative expenditures and unit costs under the various departments. The detailed report of any particular department can be readily found by referring to the index on the preceding page.

Respectfully submitted,

W.L. Barrett.

City Engineer.

TOTAL YEARLY EXPENDITURE

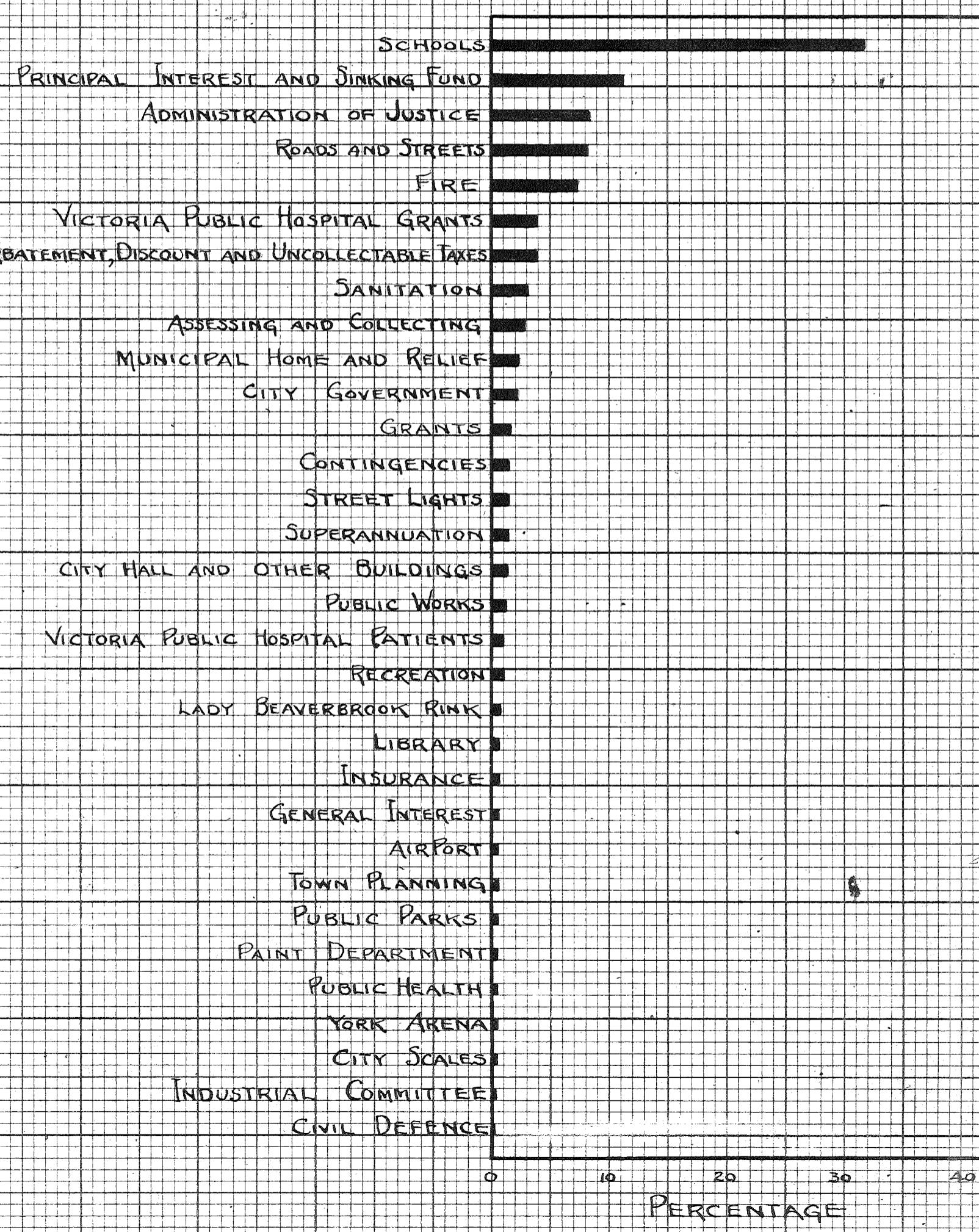
The total yearly net expenditure under the direct supervision of the City Engineer in 1957 amounted to \$752,306.39. This expenditure will be taken up in detail under the various headings in this report. The total gross expenditure for 1957 amounted to \$870,874.40.

A graphic comparison of expenditures for labor and labor material for the year 1956 and the year 1957 is shown on the following graph.

The location of new construction completed or commenced in 1957 is shown on two maps inserted after page 3 of this report.

Following the maps is a graph showing the distribution of the City of Fredericton Tax Dollar.

DISTRIBUTION OF THE 1957 CITY DOLLAR



ROADS and STREETS

In 1957 the appropriation for Roads and Streets was \$156,000.00.

There are in Fredericton some 59.15 miles of roads and streets; 12.00 miles being located on the north side of the Saint John River and 47.15 miles on the south side. In addition there are 37.86 miles of concrete sidewalks; 5.63 miles on the north side and 32.23 miles on the south side of the Saint John River.

The paved and unpaved roads and streets are divided between the Rural and Urban districts. (Inside and Outside Tax Rate) as follows:-

<u>Roads and Streets</u>		
	<u>Urban</u>	<u>Rural</u>
Paved	30.69	6.28
Unpaved	<u>12.52</u>	<u>9.66</u>
TOTAL	<u>43.21</u>	<u>15.94</u>
		<u>59.15</u>

Roads and Streets Expenditures - 1957

Gross Expenditure	\$ 229,909.90
Credits	<u>57,539.87</u>
Net Expenditure	\$ 172,370.03
1957 Appropriation	<u>156,000.00</u>
	\$ 16,370.03
Less \$14,000 deferred payment for Unit Backhoe which is shown as paid in this account	<u>14,000.00</u>
DEBIT	<u>\$ 2,370.03</u>

The above credits of \$57,539.87 are made up as follows:-

Canadian Pacific Railway Co. (Rental of Compressor and Jeep)	\$ 12.96
Fredericton Tire Service (Sale of Calcium Chloride) ..	335.53
Maritime Electric Co. (Rental on Compressor).....	36.40
M. F. Schurman Co. Ltd. (Plowing Connaught St. School)	7.60
Willett Fruit Co. (Rental of Grader)	30.20
N. B. Telephone Co. (Thawing Manholes)	52.40
York Structural Steel (Sale of Scrap Metal)	67.96
Dominion Stores Ltd. (Installing Storm Sewer on King Street)...	148.78
Bemrose and Kilburn (Sale of Calcium Chloride)	6.00
Board of School Trustees (Rental of Bulldozer & Grader)	<u>80.00</u>
Forward	\$ 777.83

	Brought Forward.....\$	777.83
Dominion Stores Ltd. (Patching drainage trench in Parking Lot)	47.72	
New Brunswick Power Commission (Sale of Traffic Paint)	4.80	
O. Dunn (Installing Surface Sewer)	34.84	
Dept. of National Defence (Rental on Street Sweeper)	24.00	
H. D. Long (Rental of Compressor)	10.50	
Sussex Ginger Ale Ltd. (Cleaning Floor Drains) ...	12.68	
Sobey's Ltd. (Flushing Parking Lot)	24.00	
Willard Tims (Rental of Compressor)	31.25	
Lean Bros. (Sale of Crushed Gravel)	40.00	
Forbes & Sloat Ltd. (Rental on Street Sweeper) ...	91.23	
Municipality of York (Cleaning Surface Sewer at Boyce Market)	11.79	
Kilgour & Hamilton Ltd. (Replacing posts, St. John Road)	40.00	
Thistle Dairy Ltd. (Installing Surface Sewer)....	19.65	
Diamond Construction Co. (Sale of Colas)	1.75	
A. H. Barker (Rental on Compressor)	6.75	
W. E. Bishop (Labor & Material used in the demolition of Alexander Apartments). .	6.24	
W. L. Barrett (3 Gallons Diesel Fuel)57	
Brick Hill Equipment (Sale of Bulldozer).....	2,600.00	
Edison Billings (Sale of Sand)	1.25	
Blakeny Concrete Products Ltd. (Rental on Compressor)	41.55	
Journal Voucher (Corrected Invoice)	60.94	
Journal Voucher (Material sold to other Departments)	62.31	
Journal Voucher (Machinery rental on other Accounts)	45,914.00	
Journal Voucher (Gas and Oil)	3,349.59	
Journal Voucher (Holiday & Sick Leave Account) ...	<u>4,324.63</u>	
TOTAL	\$ 57,539.87	

The Gross Expenditure is divided as follows:-

<u>Labor</u>	-	being the total of Roads & Streets Pay Rolls, which includes the cost of hired trucks, or any other machinery hired by the hour	\$ 89,857.85
Material -	Charges	Which includes Workmen's Compensation, Unemployment Insurance and all material charges including purchase and repairs to City owned equipment	140,052.05

The Labor charges of \$89,857.85 are divided into the following items. These items give a good idea of the amount and kind of work done by the Roads and Streets Department during the year.

- Item 1. Snowploughing Sidewalks:- 37.86 miles ...\$ 721.59
- 2. Snow Control:- Blowing, shovelling and hauling snow, plowing or scraping roads, cleaning gutters, thawing catch basins of ice and snow and any other means of snow control, 59.15 miles 17,654.53

Forward\$ 18,376.12

	Brought Forward ...\$	18,376.12
Item 3.	<u>Streets</u> :- General work of maintenance of streets and sidewalks and any other items such as building culverts, curbs and gutters or pavements which are not mentioned under some particular heading..	25,934.35
4.	<u>Surface Sewers</u> :- Cleaning, flushing and repairing surface sewers and building new surface sewers within street limits..	2,864.58
5.	<u>Sanding Streets and Walks</u> :- Storing sand in winter storage piles and spreading same on slippery streets and walks	4,093.77
6.	<u>Yard</u> :- Men working in Blacksmith Shop and repair work in City Yard	5,338.31
7.	<u>Gravel</u> :- Application of Gravel for maintenance on City Roads and Streets ...	1,668.43
8.	<u>St. John Road</u> :- All work done on the River Road from Alexandra Street to eastern City line, other than work done by power maintainer and pavement maintenance	189.52
9.	<u>Doak Road</u> :- All work done on the Doak Road other than work done by the power maintainer	1,313.18
	<u>Wilsey Road</u> :- All work done on this road other than work done by the power maintainer	184.69
10.	<u>New Maryland Road</u> :- Montgomery Street to southern City line. All work done on this road other than work done by power maintainer or by special contract..	102.30
11.	<u>Killarney Road</u> :- <i>St. L. P. M. Ward, Jr. - Rebuilt - Capital Account</i>	
12.	<u>Outlying Roads</u> :- Hanwell Road, Montgomery Street, Priestman Street, Forest Hill and Golf Club Roads. All work done on these roads other than work done by power maintainer	249.56
13.	<u>Street Cleaning</u> :- All cleaning and removal of dirt, leaves, etc. from streets	21,725.37
14.	<u>Tarvia Repairs</u> :- Patching and repairing Asphalt or Tar Pavement and applying seal coat of light tar or asphalt to pavements	6,939.11
15.	<u>City Road Patrols</u> :-	878.56
	TOTAL	\$ 89,857.85

Following is a table comparing Labor Expenditure in these items from 1954 to 1957:-

TABLE COMPARING YEARLY COSTS IN ROADS AND STREETS LABOR ITEMS

<u>ITEM</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>
1. Snowplowing sidewalks	818.18	1,656.29	1,304.90	721.59
2. Snow Control	16,940.16	33,709.50	24,996.36	17,654.53
3. Streets	22,192.68	16,816.70	16,656.23	25,934.35
4. Surface Sewers	4,052.17	1,852.13	1,762.75	2,864.58
5. Sanding Roads and Streets	2,798.64	4,327.59	5,360.02	4,093.77
6. Yard	4,200.19	3,653.97	5,093.09	5,338.31
7. Gravel	2,259.22	1,993.82	2,146.68	1,668.43
8. St. John Road	2,872.41	569.06	149.61	189.52
9. Doak & Wilsey Roads	88.89	738.67	137.02	1,497.87
10. New Maryland Road	121.03	231.15	254.70	102.30
11. Killarney Road	---	---	---	---
12. Outlying Roads	2,378.91	461.63	3.36	249.56
13. Street Cleaning	11,773.86	13,186.69	14,956.40	21,725.37
14. Tarvia Repairs	1,839.42	5,513.19	4,389.59	6,939.11
15. City Road Patrol	1,276.49	856.41	559.37	878.56
16. Preparation & Paving	416.33	---	---	---
17. City Forest	2,481.11	Transferred to O'Dell Park Acct.		
TOTAL	\$ 76,509.69	85,566.80	77,770.08	89,857.85

Some of the above items for Labor may be better understood by the following explanations:-

ITEM 1. - 37.86 miles of sidewalk were kept plowed this year. To the labor cost of \$721.59 must be added an approximate cost of \$1,023.74 (Workmen's Compensation), Pension Fund, Gas, Oil, Repairs and Depreciation), giving a total cost of \$1,745.33 or a unit cost for plowing of sidewalk of approximately \$46.09 per mile for 1957.

ITEM 2.

<u>Snow Control</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>
Snowplowing Roads and streets	2,559.95	5,655.80	4,059.22	3,778.67
Blowing, Shovelling and Hauling Snow	11,286.63	25,679.55	19,118.99	11,298.73
Catch Basins	1,078.51	1,189.07	968.01	1,700.65
Snow Fences	654.39	849.96	505.20	480.63
Keeping Drains on the Hills open	1,143.42	259.32	254.14	250.06
Thawing Culverts	217.26	75.80	90.80	145.79
TOTAL	\$ 16,940.16	33,709.50	24,996.36	17,654.53

59.15 miles of Roads and Streets were plowed and maintained during the winter months.

The unit cost per mile of plowing and maintaining City Roads and Streets was approximately \$737.00 and was calculated as follows:-

Labor (Snow Control)	\$ 17,654.53
(Sanding Roads)	4,093.77
Workmen's Compensation	600.00
Pension and Holiday Fund paid by City	250.00
City Trucks (1100 Hrs. @ \$2.00 per hour).....	\$2200.00
(317 Hrs. @ \$1.50 per hour).....	<u>475.50</u>
City Road Patrols (1132 Hrs. @ \$6.00 per hour)	2,675.50
Sicard Truck Plough (21 Hrs. @ \$7.00 per hour)	6,792.00
City Bulldozers (748 Hrs. @ \$4.50 per hour).....	147.00
(114 Hrs. @ \$7.00 per Hr.).	<u>798.00</u>
City Thawing Machines (589 Hrs. @ \$2.00 per hour).....	4,164.00
1,178.00	
City Shovels (177 hrs. @ \$6.00 per hr.)	1,062.00
City Snow Blower	915.27
Sand (1400 yds. @ \$1.25 per yard) ...	1,750.00
Rock Salt (125 tons @ \$19.13 per ton)	<u>2,391.25</u>
TOTAL	<u>\$ 43,655.32</u>

It is interesting to note the account submitted to the Provincial Government for Snow Control. This account does not exactly coincide with this report as to dates, being the expenditure made from November 1, 1956 to May 1, 1957. It is a very exact account of Snow Control costs during the above period and is incorporated in this report for record purposes.

Department of Public Works
Province of New Brunswick.

In Account With
THE CITY OF FREDERICTON

City Pay Rolls charged to Snow Control	\$ 31,661.28
Workmen's Compensation	798.62
Pension and Holiday Funds paid by City	3,460.67

City Trucks:-

1953 G.M.C. 3 ton Dump 750 hours @ \$2.00	1,500.00
1953 Ford 3 ton Dump 682 hours @ \$2.00	1,364.00
1955 Chev. 3 ton Dump 675 hours @ \$2.00	1,350.00
1956 Fargo 3 ton Dump 622 hours @ \$2.00	1,244.00

City Jeeps - Sidewalk Plows

Jeep #1 263 hours @ \$1.50	394.50
Jeep #2 332 hours @ \$1.50	498.00
Jeep #3 228 hours @ \$1.50	342.00

City Road Plows

Allis Chalmers Grader 389 hours @ \$6.00	2,334.00
Austin Western Grader 386 hours @ \$6.00	2,316.00
Champion Grader 344 hours @ \$6.00	2,064.00

<u>Sicard Truck Plow</u> 19 hours @ \$7.00	133.00
--	--------

City Bulldozers

T.D.6 - 1948 174 hours @ \$3.00	522.00
T.D.6 - 1949 108 hours @ \$3.00	324.00
D 2 - 1953 244 hours @ \$3.00	732.00
D 6 - 1953 218 hours @ \$7.00	1,526.00

<u>City Thawing Machine</u> 685 hours @ \$2.00	1,370.00
--	----------

<u>City Shovel</u> C - 16 102 hours @ \$7.00	714.00
--	--------

City Snow Blower - Sicard Jr.

Total hours in use -- 140	
778.5 gallons of Gasoline @ 31.3¢	243.67
64 quarts of Oil @ 36.5¢	23.36
Insurance	56.28
Repairs	608.45
Depreciation (10% of Depreciated Value \$5552.34).	555.23

Sand

Bemrose and Kilburn - 785 yards @ \$1.25	981.25
Douglas Saunders - 672 Yards @ \$1.25	840.00

Rock Salt

65 tons @ \$19.13	<u>1,243.45</u>
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TOTAL	\$ 59,199.76
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Note:- Wages of operators of City machines do not appear as they are included in Pay Rolls charged to Snow Control Account.

Certified Correct,

W.L. Barrett
City Engineer.

Snow Fall in Fredericton for the last five years was as follows:-

Dec. 1, 1952 to November 30, 1953	53 $\frac{1}{2}$ inches
Dec. 1, 1953 to November 30, 1954	117-3/10 inches
Dec. 1, 1954 to November 30, 1955	136-9/10 inches
Dec. 1, 1955 to December 31, 1956 (13 months)	139-6/10 inches
Jan. 1, 1957 to December 31, 1957	81-3/10 inches

Snow Fences:- Eleven thousand feet of lath and wire snow fencing was erected to control snow.

ITEM #3

Streets:-

Repairs to Streets (repairs to Curbs, driveways, sidewalks, bridges, culverts, erecting of guard rails, widening streets, etc.)	\$ 2,418.42
Repairs to Machinery	7,475.99
Weather account (Holidays)	14,915.87
Unloading and spreading Calcium Chloride	525.51
Surveying	573.36
TOTAL	<u>\$ 25,909.15</u>

In 1957, 115 tons of Calcium Chloride and 125 tons of Malagash Salt were purchased for dust control and de-icing. Also purchased for dust control was 22,262 Imperial Gallons of SC-O Asphalt. This material gives good results providing it could be applied when conditions are satisfactory. However, public demand does not allow the proper use of this material.

ITEM #4

Surface Sewers:-

The Surface Sewers in the City were flushed where necessary and all Catch Basins were cleaned and repaired during the year and repairs were made to any breaks that occurred or extensions needed to the sewer outlets.

Under this heading a 10" Surface Sewer, 180 feet in length was laid by City workmen on the premises of the New Brunswick Telephone Company and Dominion Stores Ltd. and paid for by the Dominion Stores Ltd. and an 8" Surface Sewer, 87 feet in length was laid on the premises of Thistle Dairy Ltd. and paid for by The Thistle Dairy Ltd.

ITEM #5

Sanding Streets and Walks:-

2,489 cubic yards of Sand was used during the winter of 1956-1957. Cost of the labor for sanding streets and walks during the winter was \$4,093.77.

ITEM #7

Gravel:-

3,150.775 tons of crushed gravel and 262.24 tons of Base Gravel was used in the maintenance and repairs to Gravel Roads under Roads and Streets.

The Crushed Gravel was purchased from Forbes and Sloat at a cost of 85¢ per ton and the hauling charge was 40¢ per ton, making a total cost per ton of crushed gravel, delivered to the job, of \$1.25. The Base Fill was purchased from Douglas Saunders at 65¢ per ton.

Under this heading the following roads were gravelled:-

Portions of MacLaren Avenue, Union Street, Churchill Row, Wagoner's Lane, Montgomery Street, Connaught Street and Campbell Street.

Also gravelled was the parking lot at the rear of the City Hall and the extended width on Queen Street in front of the new Canadian Tire Building. A stock pile was also placed in the City Yard for spring frost boils and excavation repairs.

An application of crushed gravel approximately 3" thick was applied to the above listed roads.

ITEM #8

St. John Road:-

The grass was mowed, posts replaced and bushes were cut along the right of way of the Saint John Road to the eastern limit of the City of Fredericton at a labor cost of \$189.52.

ITEM #9

Doak and Wilsey Roads:-

The bushes were cut along the right of way of the above roads.

The Doak Road was grader ditched, new culverts constructed and gravelled from the new School to the U. N. B. line on the Flanagan Road at a cost of \$2,168.78.

This section of the road has been in very bad condition in the spring of the year for a good many years and presented a continuous maintenance problem, filling the frost boils and trying to keep the road passable.

The work done on this Road in 1957 will be a great improvement to year round driving conditions.

The Wilsey Road requires new culverts and ditching along sections of the Road and as time and materials become available this Road also will be improved in the future.

ITEM #10

New Maryland Road

The labor charge of \$102.30 was made up of cleaning the refuse (paper, garbage, etc.) repairing the shoulders of the road and cutting bushes.

ITEM #13

Street Cleaning:-

The labor expenditure charged to this account amounted to \$21,725.37. To this labor charge to get the overall cost for cleaning streets, must be added a material charge of \$18,536.62, thus making a total cost for cleaning streets of \$40,261.99.

The material charge of \$18,536.62 is made up as follows:-

Labor on repairs to Sweeper	\$ 594.53
Repair materials to Elgin Street Sweeper, including Gutter Broom, Wire and Elco Hickory Fibre, etc.).	5,779.14
Gas (1740 gallons @ 31¢ per gallon)	539.40
Oil (94 quarts @ 33¢ per quart)	31.02
Water (336,300 gallons)	72.68
Insurance	66.25
Depreciation (Elgin Sweeper)	2,568.38
Sicard Flusher (Repairs)	192.10
Labor charge on Sicard Flusher	133.36
Sicard Flusher (Depreciation)	1,950.00
Water - Sicard Flusher (4,590,000 gallons)...	825.70
Gas - Sicard Flusher (2461.75 gallons)	763.14
Oil - Sicard Flusher (189 quarts)	62.37
Hand Brooms	150.00
Insurance (Flusher)	58.00
City Machinery (Trucks)	<u>4,750.55</u>
TOTAL	<u>\$ 18,536.62</u>

The Elgin Street Sweeper worked 1121 hours during 1957. The actual cost for cleaning streets with this machine was \$11,221.40, and was computed as follows:-

Labor on repairs to Street Sweeper	\$ 594.53
Repair materials to Elgin Street Sweeper including Gutter Broom, Wire and Elco Hickory, etc.	5,779.14
Gas (1740 gallons @ 31¢ per gallon)	539.40
Oil (94 quarts @ 33¢ per quart).....	31.02
Water (336,300 gallons)	72.68
Insurance	66.25
Depreciation (Elgin Street Sweeper)	2,568.38
Labor (Operator and Helper making Brushes)	<u>1,570.00</u>
TOTAL	<u>\$ 11,221.40</u>

The operating dates for the above machine were from May 1st to November 22nd.

In 1955 the City of Fredericton purchased a Sicard Master Flusher with a capacity of 2,250 Imperial Gallons. The price of this machine was \$19,435.00 and was paid for in 1956.

The operating dates for the above machine were from April 24th to November 22nd.

The Flusher worked 1,020 hours. The actual cost for cleaning streets with this machine was \$5,239.27 and was computed as follows:-

Repair material to Sicard Flusher	\$ 192.10
Labor charge to Sicard Flusher	133.36
Gas (2461.75 gallons @ 31¢ per gallon) ...	763.14
Oil (189 quarts @ 33¢ per quart)	62.37
Water (4,590,000 gallons)	825.70
Insurance	58.00
Depreciation	1,950.00
Labor (Operators)	<u>1,254.60</u>
TOTAL	<u>\$ 5,239.27</u>

ITEM #14

Tarvia Repairs

Labour

Wages & Taxes

The labor expenditure charged to this account amounted to \$6,939.11. This amount was made up as follows:-

Patching	\$ 6,001.72
Seal	<u>937.39</u>
TOTAL	<u>\$ 6,939.11</u>

Patching:-

*See Note
1958 Report*

In most of this pavement patching the patching material was mixed in a concrete mixer at the City Yard using a cut back tar or asphalt and local crushed gravel which was dried out by an AD-7, Px Tarco Aggregate dryer. The holes in the pavements, after having the edges painted, were raked full of patching material and rolled by a M-157 Trail-O-Roller. Also used in patching in 1957 was 170.665 tons of Base, premixed Asphalt and 113.75 tons of Seal which was hauled by City trucks from the plant of the Diamond Construction Company situated at McKinley's above Fredericton. The Diamond Construction Company charged the City \$6.50 per ton for seal and \$5.00 per ton for Base when hauled by City trucks. The above purchased Asphalt is of much better quality than City mixed Asphalt, due to higher temperature and better control of mix, which results in a better repair job.

The total expenditure for Patching City Streets for 1957 was \$14,738.81 and was computed as follows:-

Asphalt (7,919 Gallons RC ₃)	\$ 3,721.57
(1,761 Gallons PM ₃)	765.81
(1,350 Gallons RS-1 Colas)	<u>758.02</u>
Less Credit on Return of Drums	<u>1,064.00</u>
Total Asphalt Cost	\$ 4,181.40
Kerosene (2,305 gallons)	645.66
Premixed material hauled by City trucks from Diamond Construction Company:-	
170.665 tons Base @ \$5.00 per ton.	\$ 857.33
113.750 tons Seal @ \$6.50 per ton	<u>\$ 1,596.70</u>
Gravel (1,040 tons)	1,456.00
Labor (City employees)	<u>6,001.72</u>
TOTAL	<u>\$ 14,738.81</u>

We have in stock, December 31, 1957:-

1,000 Gallons RC ₃ @ 30¢ per Gallon..	\$ 300.00
450 Gallons RS-1 Colas @ .315¢ per gallon	<u>141.75</u>
	\$ 441.75
Sales Tax 3%	<u>13.25</u>
	\$ 455.00

Seal:-

This year, 4.63 miles of City Streets were sealed by the Diamond Construction Company at a cost of \$11,464.35 made up as follows:-

19,400 Gallons RC ₃ @ .28¢ per Gallon	\$ 5,432.00
1182.47 tons $\frac{1}{4}$ " Grit @ \$5.00 per ton	<u>5,912.35</u>
30 tons $\frac{1}{4}$ " Grit (City Yard) @ \$4.00 per ton	<u>120.00</u>
TOTAL	<u>\$ 11,464.35</u>

In order to keep complaints of dust nuisance to a minimum, double washed crushed grit was used to blanket the Asphalt in the seal programme of 1957. However, although the percentage of fine sand was very small there was still enough to cause a dust nuisance on streets that have high vehicular counts.

This application of liquid asphalt and binder is very essential to the maintenance of City Streets and in 1958 this department proposes the use of crushed rock 3/8" minus, double washed to eliminate as much as possible, the dust nuisance which has been so much in evidence in the past.

The end results of the seal programmes have been good, but the dust nuisance has been bad and it is the intention of this department to prevent the dust nuisance so that the public will not have cause to complain.

The following streets were sealed in 1957:-

<u>Location</u>	<u>Lineal Feet</u>
Smythe Street, Brunswick St. to C.N.R. Track	2,265
Northumberland St., George St. to King Street	847
Brunswick Street, Westmorland St. to Smythe St.	1,200
Brunswick Street, York Street to Regent Street	1,250
George Street, St. John St. to Regent Street	600
University Avenue, Lansdowne St. to Alexandra St.	1,000
Alexandra Street, University Ave. to Waterloo Row	1,311
Waterloo Row, Alexandra St. to east property line of Kent Inn Property	3,050
Reid Street, Albert Street to Green Road	1,200
Regent Street, Albert Street to approximately 500 feet east of Green Road	1,835
Hanson Street, Green Road to Albert Street	1,370
York Street, C.N.R. track to Green Road	2,912
Albert Street, Regent Street to York Street	1,416
Green Road, Hanson Street to York Street	1,840
McLeod Avenue, Regent Street to St. John Street	633
King Street, Church Street to Queen Street	150
Aberdeen Street, Westmorland St. to Smythe Street	1,481
Westmorland Street, Aberdeen Street to C.N.R. track	100
TOTAL	<u>24,460</u>

The preparatory work and cleaning up of excess grit for the above work was done by City workmen and City machinery at a cost of \$1,337.39. (City machinery \$400.00, City Labor, \$937.39), thus the total cost for the above sealing was \$12,801.74 making approximately \$2,765.00 per mile for sealing.

In addition under the heading "Tarvia Repairs" the gutters on Regent Street between Brunswick and Scully Streets, were raised and the driveways were excavated between the curb and sidewalk and replaced with pavement.

ITEM #15

City Road Patrol:-

The total repair charges on our Road Patrols for the last three years were:-

<u>Date Purchased</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>
1950 Austin Western #99H	2,164.77	9,564.60	1,879.40
1953 Champion	2,465.78	1,094.25	1,731.33
1955 Allis Chalmers (AD-40)		91.88	1,590.93

The following were purchased by the City this year and charged to Roads and Streets.

1 - 1957 Ford C/L Coach Serial #670AK57-569585 \$2730.00 less trade in allowance on 1954 Chevrolet \$1530.00, plus 3% Sales Tax \$36.00	\$ 1,236.00
1 - 1957 Chevrolet, Model 1315 - $\frac{1}{2}$ ton Panel Serial No. 71315609488, \$2688.90 less trade in allowance on 1946 Dodge $\frac{1}{2}$ ton Panel \$708.90, plus 3% Sales Tax \$59.40.....	2,039.40
1 - 1957 Chevrolet, Model 1653, 3 ton 19500 G.V.W. Serial, #71643601633 Hoist and Body \$5389.45, less trade in allowance on 1953 G.M.C. hoist and body \$1609.45, plus 3% Sales Tax \$113.40	3,893.40
1 - CJ 5 - Jeep Motor #4, J146147, Serial #5748-48873 with Morrison Sno- Dozer 6' Reversible blade installed, full hydraulic, Metal Cab \$3481.80, less trade in allowance on 1953 Jeep and Plow \$821.80, plus 3% Sales Tax, \$79.80	2,739.80
1 - Unit Tranch Hoe Model 1020 A, Diesel Powered, \$30,970.00, less trade in allowance on Michigan Model C-16, $\frac{1}{2}$ yard Shovel and Hoe attachments \$7,400.00 plus 3% Sales Tax \$707.10	24,277.10
1 - Caterpillar D-2, 50" Guage Tractor Serial #5 U18815, with No. 2A Bulldozer Serial 7G4483 and No. 44 Hydraulic Control Serial 9W8570, \$9,450.00 plus 3% Sales Tax \$273.00, less trade in allowance on 1949 International TD6, Angle Dozer and Blade \$2600.00	7,123.00
1 - Ingersol Rand Compressor Serial #MP125KRL3633, \$5424.00 plus 3% Sales Tax \$162.72.....	<u>5,586.72</u>
TOTAL	\$ 46,895.42

Part of the purchase price of the Ingersol Rand Compressor was paid for in 1957, namely \$2,874.72, thus leaving the balance \$2,712.00 to be paid for in 1958 on a rental purchase plan.

Following is the list of vehicles and machinery used and charged to Roads and Streets showing a comparison of Repair Charges for 1956 and 1957:-

<u>Name of Vehicle or Machine</u>	<u>Year Purchased</u>	<u>Repairs 1956 (13 Months)</u>	<u>Repairs 1957</u>
Chevrolet 3 ton Dump Truck (Trade-in July 1956)	1951	167.24	----
Chevrolet $3\frac{1}{2}$ ton Dump Truck	1955	602.04	403.87
Fargo 3 ton Dump Truck	1956	256.72	101.48
Ford 3 ton Dump Truck	1953✓	721.09	632.59
G.M.C. 3 ton Dump Truck (Trade-in May 1957)	1953	464.17	121.21
Dodge Panel (Trade-in May 1957) ...	1946	199.11	105.57
Ford $\frac{1}{2}$ Ton Pick-Up	1952	478.33	427.12
Chevrolet Coach (Trade-in May, 1957)	1954	445.97	270.46
Ford Tudor Coach	1957	----	162.17
Chevrolet 3 ton Dump Truck	1957	----	95.67
Chevrolet Panel $\frac{1}{2}$ Ton	1957	----	88.30
Caterpillar D-6 Bulldozer	1953	3,577.59	1,299.70
Caterpillar D-2 Bulldozer	1954	1,169.49	2,008.77
International TD-6 Bulldozer	1948	1,272.31	779.01
International TD-6 Bulldozer (Trade-in May 1957)	1949	795.96	125.16
Caterpillar D-2 Bulldozer	1957	----	81.29
Elgin Street Sweeper	1953	3,944.63	6,373.67
Air Pic Compressor	1953	1,070.20	525.60
Ingersol Rand Compressor	1957	----	34.37
Michigan T6K Shovel (3/8 yard)	1947	810.35	2,400.95
Michigan C-16 Shovel $\frac{1}{2}$ Yard (Trade-in May 1957)	1951	1,429.95	163.63
Unit Shovel	1957	----	759.22
Model #157 Trail-O-Roller	1955	76.91	65.90
Sicard Jr. Snow Blower	1949	608.45	273.31
Sicard Flusher (2250 I.G. Capacity)	1955	542.38	325.46
Willeys Jeep #1	1955	603.08	133.96
Willeys Jeep #2	1955	823.41	404.40
Willeys Jeep #3 (trade-in May 1957)	1953	392.84	152.33
Willeys Jeep #3	1957	----	36.30
Austin Western Grader #99H	1950	9,564.60	1,879.40
Champion Grader	1953	1,094.25	1,731.33
Allis Chalmers Grader AD-40	1955	91.88	1,590.93
TOTAL		\$ 31,202.95	23,553.13

CAPITAL ACCOUNT PAVING

The Net Expenditure under this heading amounted to \$ 29,248.25

Included in the above expenditures are:-

1.	Capital Account Curb & Gutter	\$ 20,987.47
2.	Capital Account Paving	<u>8,260.78</u>
	TOTAL	\$ 29,248.25

For the above expenditure of \$20,987.47 concrete curbs and gutters were laid at the following locations:-

<u>Location</u>	<u>Lineal Feet</u>
Union Street, Bridge St. to Gibson St. (East side)	3,317
Union Street, St. Marys St. to West City line (west side). .	1,302
Byng Street, Henry St. East and West (both sides)	1,118
Jaffrey St., Union St. towards River (both sides)	625
Smith Street, Union St. towards River (both sides)	951
MacLaren Ave. - C.M.H.C. line to westerly side line of Hughes Street (both sides)	500
Smythe Street, Dundonald St. to Edinburgh St. (both sides). .	2,126
Tamarack Terrace (both sides)	874
Saunders St., O'Dell Ave. to Rookwood Avenue ,.....	2,124
Argyle St., Westmorland St. to Northumberland St. (east side)	553
Aberdeen St., Church St. to C.N.R. track (both sides)	698
Wilmot Apartments	1,276
Rookwood Ave., Parkhurst Dr. to Woodstock Rd. (west side)..	756
Campbell Street, Regent St. to westerly side of driveway to Fredericton Post Office, (west side)	423
Miscellaneous (Portions of old curb replaced, namely on Rookwood Avenue, York Street, Regent Street, King Street, Brunswick Street, Riverdale Court and Carleton Street)	<u>205</u>
TOTAL	<u>16,848</u>

All the listed Curbs and Gutters were built by City crews.

All the concrete poured was purchased, ready mixed on the job from the firm of Blakely Concrete Products Limited at a contract price of \$14.50 per cubic yard. A cubic yard of concrete for Curb and Gutter, poured 23.2 lineal feet of Curb.

The unit cost of one lineal foot of Curb and Gutter, found by dividing the total length laid which equals 16,848 lineal feet into the total cost of \$20,987.47 is \$1.24 per lineal foot.

With the net expenditure of \$8,260.78 pavement was laid on Rookwood Avenue, Queen Street, along side of Sobeys Stores Ltd. and on Union Street from Henry Street to Bridge Street and from St. Marys Street to City line, from edge of old pavement to the new curb constructed in 1957.

The above pavement was laid to a thickness of 3". The street grading and preparatory work, other than the actual supplying and laying in place of the pre-mixed pavement, was done by regular City crews at a cost of \$934.78. The pre-mixed pavement was supplied and laid by the Diamond Construction Company from their plant located at McKinley's above Fredericton. The Company charged the City for this pavement in place, \$7.50 per ton for $\frac{3}{4}$ " dense mixed material.

The cost for paving in 1957 was as follows:-

Diamond Construction Co. (To supply and place $\frac{3}{4}$ " dense mix Asphalt, 976.8 tons @ \$7.50 per ton).....	\$ 7,326.00
City workmen, Machinery, Material, Etc.	<u>934.78</u>
TOTAL \$ 8,260.78	

CAPITAL ACCOUNT - SEWER DOMESTIC

Gross Expenditure and Stocked Material	\$ 25,611.24
Credits	<u>3,656.97</u>
Net Expenditure	<u>\$ 21,954.27</u>

The above credits are made up as follows:-

Town of Marysville (Sale of manhole cover and frame)	\$ 42.08
Work done on Domestic Sewers for Private Parties	1,468.81
Journal Voucher (Materials paid for by Capital Account Sewer and used by other City Departments)	<u>2,146.08</u>
TOTAL \$ 3,656.97	

The above expenditure covers all new Domestic Sewer Construction in the City.

For this expenditure, sewers were laid at the following locations:-

<u>Location</u>	<u>8" T. C. Pipe</u> <u>Lineal Feet</u>
Bridge Street (across C. P. R. Track)	115
Dundonald Street	375
Beaverbrook Court	711
Green Road, Smythe Street towards York Street	1,040
Hillcrest Drive, Forbes Street to Clark Street	341
Mitchell Street and Squires Street	430
Dayton Court	273
Smythe St., 1 $\frac{1}{4}$ feet east of Hawthorne Terrace to Montgomery Street	1,680
York Street, Green Road to Montgomery Street	<u>1,240</u>
TOTAL 6,205	

An actual cost of installing the above listed sewers at the above locations was kept, giving a unit price per foot of \$4.24 for labor and material.

<u>Location</u>	<u>Labor and Machinery</u>	<u>Material</u>	<u>Total</u>
Bridge Street	\$ 142.44	205.60	348.04
Dundonald Street)			
Beaverbrook Court)	1,112.48	1,731.41	2,843.89
Green Road	1,953.28	2,202.06	4,155.34
Hillcrest Drive	214.86	352.53	567.39
Mitchell & Squires Streets	674.51	625.50	1,300.01
Dayton Court	258.32	352.33	610.65
Smythe Street	4,471.85	2,983.81	7,455.66
York Street	2,935.42	1,737.87	4,673.29
TOTAL	<u>\$ 11,763.16</u>	<u>10,191.11</u>	<u>21,954.27</u>

Total lineal feet laid, 6,205 thus making the cost per lineal foot of \$3.53. To this must be added approximately 20% which includes Holidays for the City workmen, pension fund, workmen's compensation, unemployment insurance and engineering, thus making the overall cost of \$4.24 per lineal foot installed.

In addition to the above listed locations, sewers were also laid and paid for by the property owners at the following locations:-

<u>Location</u>	<u>Installed by</u>	<u>Lineal Feet of 8" T. C. Pipe</u>
Green Road (U.N.B. property)	City Workmen	191
Woodbridge Street (Stan Cassidy Rehabilitation Centre)	City Workmen	350
TOTAL		<u>541</u>

Material in Stock, December 31, 1957:-

437 lineal feet of 8" T. C. Pipe @ 86¢ per foot	\$ 375.82
12.5 lineal feet of 12" T. C. Pipe @ \$1.46 per foot	18.25
1 Manhole (Cover and Frame)	<u>44.18</u>
TOTAL	<u>\$ 438.25</u>

CAPITAL ACCOUNT - SURFACE SEWER

Gross Expenditure and Stocked Material	\$ 56,683.66
Credits	<u>8,711.01</u>
Net Expenditure	<u>\$ 47,972.65</u>

The above Credits are made up as follows:-

Realty Development Co. (Sale of Cement)	\$ 1.45
Edison Billings (Sale of material for installation of floor drain)	36.43
Dominion Stores Ltd. (Installation of Surface Sewer, King Street)	135.00
E. J. Whalen (Sale of Concrete Pipe and Cement)	10.70
Board of School Trustees (Installation of Surface Sewer Connaught Street School)	180.38
Mrs. Pearl Boone (Sale of Cement)70
Thistle Dairy Ltd. (Installation of Surface Sewer)	160.36
Stan Cassidy (Sale of material for installation of Surface Sewer)	128.16
Willard Tims (Sale of Dynamite and Detonators)	8.31
University of New Brunswick (Sale of 10" Concrete Pipe)	7.80
A. H. Barker (Material used in demolition of Alexander Apartment Building)	2.91
S. R. McArthur (Sale of Dynamite and Detonators)	3.36
W. W. Barker (Sale of Dynamite and Detonators)	5.55
W. E. Bishop (Material used in demolition of Alexander Apartment Building)	3.70
Ashfield Construction Co. Ltd. (Sale of 1 Catch Basin):	43.99
Journal Voucher (Material paid for by Capital Account Surface Sewer and used by other City Departments)	<u>7,982.21</u>
TOTAL	<u>\$ 8,711.01</u>

Under this heading, Surface Sewers were laid at the following locations:-

Location	C.I.			Concrete				T.C.		48"
	18"	14"	12"	24"	18"	15"	12"	10"	15"	Concret
Barker Street		16	36				826	64		
Bridge Street		32					464			
Beaverbrook Crt.							749			
Dundonald Street							127	346		
Crerar Crt., Hughes and Union Streets	10					1370	130	32		
Connaught							8	123		
Green Road						1044		120		
Gibson Street						48				12
Highland Avenue					35	908				
Hillcrest Drive				242			12	12		
Hanson Street								33		
St. Marys Street					346					
Miles Street								110		
Mitchell & Squires								12		
Dayton Court								33		
Rookwood Avenue										
Regent Street										
Smythe Street										
Wilmot Apts.										
Back Drain Diversion										
TOTALS	50	48	36	550	381	3562	3555	1889	12	492

An itemized account was kept of installing Surface Sewers at the above locations and expenditures were made as follows on the larger constructions:-

<u>Location</u>	<u>Labor and Machinery</u>	<u>Material</u>	<u>Total</u>
Barker Street	\$ 978.44	1,580.94	2,559.38
Bridge Street	765.40	564.24	1,329.64
Beaverbrook Court)	822.10	1,689.56	2,511.66
Dundonald Street)			
Crerar Crt., Hughes and Union Streets	2,624.19	4,015.72	6,639.91
Connaught Street	185.76	254.30	440.06
Green Road	3,195.34	2,553.50	5,748.84
Highland Avenue	3,328.35	2,050.70	5,379.05
Hillcrest Drive	561.99	872.47	1,434.46
Hanson Street	95.87	153.67	249.54
St. Mary's Street	1,513.08	1,046.05	2,559.13
Miles Street	180.23	187.89	368.12
Mitchell & Squires Streets	782.18	1,265.86	2,048.04
Dayton Court	863.65	1,274.02	2,137.67
Rookwood Avenue	150.03	361.58	511.61
Regent Street	429.47	900.58	1,330.05
Smythe Street	355.05	491.48	846.53
Wilmet Apartments	481.42	1,298.05	1,779.47
Back Drain Diversions	880.95	6,521.78	7,402.73
TOTAL	\$ 18,193.50	27,082.39	45,275.89

Under this heading Surface Sewers were laid for the Fredericton School Board for Connaught Street School, Thistle Dairy Ltd. on Hayes Street and Stan Cassidy Rehabilitation Centre on Woodbridge Street. The cost of the above sewers were paid for by the property owners.

The following is the total cost for laying the various sizes of pipe in place:-

10" Concrete Pipe	\$ 3.50 per lineal foot
12" Concrete Pipe	3.75 per lineal foot
15" Concrete Pipe	5.40 per lineal foot
18" Concrete Pipe	6.20 per lineal foot
24" Concrete Pipe	7.00 per lineal foot

Stock on Hand

We have in stock, December 31, 1957 the following:-

213 feet of 10" Concrete Pipe @ .71¢ per foot	\$ 151.23
191 feet of 12" Concrete Pipe @ .87¢ per foot	166.17
8 feet of 36" Concrete Pipe @ 7.83 per foot	62.64
Catch Basin (14 Gratings and 12 Frames)	594.96
5000 Brick @ \$47.05 per thousand	235.25

TOTAL\$ 1,210.25

1959 - Less (Substitute)

CAPITAL ACCOUNT - WATER

Gross Expenditure and
Stocked Material \$ 139,122.62
Credits 8,658.17

Net Expenditure \$ 130,464.45

The above Credits are made up as follows:-

W. E. Emmerson & Sons Ltd. (Extending Water service New Dominion Store, Smythe Street)	\$ 56.33
Department National Defence (Installing water to building #9, St. Anne Point Barracks)	209.06
Department National Defence (Material used in installing water to Armouries, Carleton Street). .	20.09
M. F. Schurman Co. Ltd. (Repairing Water main and new service at new Residence, U. N. B.)	29.24
Forbes and Sloat (Labor and material for U. N. B. Water Extension)	1,315.28
Forbes and Sloat (Sale 1-10" M. J. Gate Valve)	207.97
Forbes and Sloat (Sale 32'-6" M. J., C. I. Pipe @ \$2.25 per foot)	72.00
John McMinniman (Drilling holes through Cellar Wall)..	3.88
Journal Voucher (Material paid for by Capital Account Water and used by other City Departments)	6,744.32
TOTAL	\$ 8,658.17

Installations were made at the following locations:-

Location	14"	12"	8"	6"	4"
Bridge Street			848		
Beaverbrook Court)			1330	542	
Dundonald Street)					
Feeder Main, Carleton Ward	3510			16	
Hanson Street		302		6	
Hillcrest Drive				368	
Mitchell & Squires Streets		360	430		
Dayton Court					266
Smythe Street	1430			18	
York Street			1512	24	
TOTAL	1430	3510	4352	1404	266

An itemized account was kept of installing Water at the
above locations and expenditures were made as follows:-

Location	Labor and Machinery	Material	Total
Bridge Street	\$ 1,115.35	3,569.30	4,684.65
Beaverbrook Court)	1,762.63	8,064.42	9,827.05
Dundonald Street)			
* Feeder Mains, Carleton			
Ward Reservoir	8,346.78	21,884.32	30,231.10
Hanson Street	665.82	1,722.28	2,388.10
Hillcrest Drive	563.50	1,718.76	2,282.26
Mitchell & Squires Streets	918.34	3,461.07	4,379.41
Dayton Court	318.35	1,012.49	1,330.84
Smythe Street	4,537.60	13,774.61	18,312.21
York Street	1,728.80	6,472.44	8,201.24
TOTAL	\$19,957.17	61,679.69	81,636.86

* A report of this item is contained in the report under #3.

Under the above heading Water Pipe was laid and paid for by the property owners at the following locations:-

Armouries, Carleton Street - 2" Galvanized Iron Pipe
St. Anne's Pt. Barracks, Woodstock Road - 4" Cast Iron Pipe
U.N.B. Laboratory - 6" Cast Iron Pipe

The following is the total cost for laying the various sizes of pipe in place:-

14" Mechanical Pipe	\$ 15.37 per lineal foot
12" Mechanical Pipe	10.32 per lineal foot
8" Mechanical Pipe	7.20 per lineal foot
6" Mechanical Pipe	6.60 per lineal foot
4" Mechanical Pipe	5.10 per lineal foot

In addition under this heading, the following expenditures were made:-

#1 - Booster Pumping Station - Smythe Street

In 1957 the above pumping station was completed with the installation of pumps and piping which had not been delivered in 1956.

The Completion of this Booster Pumping Station makes it possible to serve the area between Montgomery Street and Green Road with Water and these streets projected east or west along elevation 300.00 and elevation 140.00 respectively. The total cost of this Booster Station was \$49,163.37, including connections to mains and was computed as follows:-

City Workmen (Labor and Material & Machinery 1956)....	\$ 3,758.82
Diamond Construction Co. (Contract price of building). .	24,700.00
Diamond Construction Co. (Extra to contract)	262.18
James F. MacLaren Associates	2,991.46
Fairbanks Morse Co. Ltd. (Contract price for pumps, etc.)	9,545.00
B.I.F. Industries (Meter)	2,375.00
Westinghouse Supply Co. Ltd. (Switchboard)	4,780.00
City Workmen (Labor material and machinery 1957) and miscellaneous items	750.91

TOTAL \$ 49,163.37

#2

- Capital Account Carleton Ward Reservoir

Expenditure to December 31, 1957 \$ 23,440.28

In 1957, construction was begun on a 1,000,000 I. G. Reservoir in Carleton Ward. This reservoir is similar to the 2,000,000 I. G. Reservoir on Smythe Street and provision has been made to allow the construction of additional capacity of the same unit.

The bottom of the reservoir has been set at elevation 174.0 feet and top water level of elevation 190.0 feet, which are the same elevations as the Smythe Street Reservoir. This was done to allow an inter connection to be made at some future date, so that the water systems may be supplied from either side of the River.

It is quite possible in the future that Fredericton on the south side, may be supplied by Wells on the north side. This statement is based on the fact that a supply, the chemical characteristics of which is satisfactory, may not be available on the south side of the Saint John River.

From tests made on the new Well on Bridge Street, indications are that a good supply in all respects is available on the north side of the Saint John River.

The water from the Gravel Wall Wells on the south side of the River have a high content of Carbon Dioxide, which causes corrosion. At the present time, the CO₂ is partially neutralized by Aeration and the addition of Air-Floated Lime, which prevents corrosion in the mains.

The Lime treatment was discontinued for a six-month period in 1956, but on examining a broken main it was found that corrosion was taking place, so that Lime is being added as a preventative to corrosion.

#3

- Capital Account Feeder Mains, Carleton Ward

Expenditure to December 31, 1957 \$ 30,231.00

The City of Fredericton entered into a contract with Forbes and Sloat Ltd. for the construction of a 12" pipe line from near the new Well on Bridge Street to the new Reservoir, a distance of approximately 3500 feet.

To date this company has completed the line to the Reservoir and there are only final connections to be made at the Reservoir to complete the contract. All material for the laying of this pipe was supplied by the City.

#4

- Capital Account, Altitude Valve

The College Hill Reservoir is now supplied from the Booster Pumping Station on Smythe Street, through an altitude valve which was installed in 1957 by City Workmen at a cost of \$2,530.33.

The installation of this valve has improved the water supply to the University of New Brunswick, in that the Altitude Valve operates on a differential of 12" which means that if the water in the Reservoir goes down 12", the

Altitude Valve opens and compensates for the loss and closes when it has replaced the 12" of water used.

The installation of this Altitude Valve has eliminated the use of a small Booster Pumping Station (except in case of an emergency) which has been supplying water to the University of New Brunswick since 1944. The University of New Brunswick Booster Pumping Station has one Pump installed, the capacity of which is 40 Imperial Gallons per minute and a larger pump the capacity of which is 150 Imperial Gallons per minute,

The Altitude Valve is regulated so that 300 Imperial Gallons per minute may flow through it on demand. This flow may be increased to 600 Imperial Gallons per minute when a reservoir is constructed on the present dead end system provided by the construction of the Smythe Street Booster Pumping Station. The flow is limited at the present time to 300 Imperial Gallons per minute because of the fact there is no reservoir on the system which is at present supplying water to the University of New Brunswick Reservoir. If the valve was opened to 600 Imperial Gallons per minute, it would mean pressure head would be lost on the upper limits of the system near Montgomery Street, thus it was necessary to limit the flow through the altitude valve to 300 Imperial Gallons per minute to maintain pressure at Montgomery Street.

CAPITAL ACCOUNT - DRILLED WELLS

The Capital Account Drilled Wells is divided into two headings, namely:- Capital Account Drilled Well, Carleton Ward and Capital Account Drilled Well, Saunders Street.

CAPITAL ACCOUNT - DRILLED WELL
CARLETON WARD BRIDGE STREET

Expenditure 1957 \$ 10,982.62

The pump house was completed, the pump installed and connections made to existing lines for emergency purposes, until the new reservoir is completed.

On October 31, 1957 it was necessary to use this new Well to supply water to Carleton Ward, due to the fact that both of the old Wells had dropped so low in output that the new Well had to be put into operation to supply the demand.

The overall plan for this area is to complete the new reservoir and connecting lines and have the new Well operate automatically, controlled by the head of water in the reservoir, with the reservoir floating on the whole system.

The existing pumps at the Killarney Road Reservoir and the Range Reservoir will be kept operative as standby in case of emergency or power failure on the Maritime Electric Supply.

These pumps will be connected direct to the new reservoir and the use of the existing open reservoirs will be discontinued, due to the possibility of contamination, and the lower head at which water is delivered to the system from the open reservoirs.

The drilling of the above Well and construction of the Pumping Station building was commenced in 1956. The total cost of the above completed Well, Pumping Station and connections to existing water main, was \$25,997.25 and was made up as follows:-

Cost of Drilling Well (Pius Sullivan)	\$ 8,715.40
James F. MacLaren Associates (Plans and specifications for building and pumps)	894.47
Maritime Engineers Ltd. (contract price for building)	6,635.00
B.I.F. Industries (1-Flo-Watch Totalizer indicator recorder)	965.00
B.I.F. Industries (1-8CDFT Doll Tube)	594.00
Richards Electric Co. (Electrical Switches and Wiring)	1,696.00
International Water Supply Co. Ltd. (Pump)	4,700.20
City Labor, Machinery, material and miscellaneous items	<u>1,797.18</u>
TOTAL	<u>\$ 25,997.25</u>

CAPITAL ACCOUNT GRAVEL WALL WELL - SAUNDERS STREET

Gross Expenditure 1957	\$ 48,918.10
Credit	<u>4,700.38</u>
Net Expenditure	<u>\$ 44,217.72</u>

The above Credit of \$4700.38 was to invoice of Canada Iron Foundries Ltd., charged to Capital Account Drilled Wells and should have been charged to Capital Account Water.

In order to keep up with the demand for water, due to the expansion of the City of Fredericton and also to insure that a ground water supply is always available, a contract was entered into by the City with the International Water Supply Co. Ltd. to construct and develop a Gravel Wall Well on Saunders Street at a contract price of \$38,420 with a guaranteed capacity of 900 Imperial Gallons per minute.

The Well has been developed, the pump set in place, a connecting line (800 feet in length) constructed to the line from the existing Well in Wilmot Park and the pump house is now partially completed to house this pump.

When this new Well is put in operation it is proposed to alternate the pumping from Well #1, Wilmot Park and Well #2 Saunders Street so that a longer service life may be obtained from the Wells.

There will be periods of high consumption when both Wells will be operating to meet the demand.

Included in the above expenditure is the laying of a 15" concrete surface sewer (420') from Well #2 on Saunders Street to the Catch Basin at the corner of Rookwood Avenue and Saunders Street. This line was required for test pumping and future by-pass to waste.

CAPITAL ACCOUNT - GRAVEL ROADS

Gross Expenditure	\$ 57,159.96
Credit	<u>363.08</u>
Net Expenditure	<u>\$ 56,796.88</u>

The above Credits are made up as follows:-

Mr. Douglas Saunders (Overpayment on Base Gravel).....	\$ 273.83
Fredericton School Board (Sale of Crushed Gravel and rental on Grader)	<u>89.25</u>
	<u><u>\$ 363.08</u></u>

Included in the above expenditures are:-

1. Excavating and graveling of newly curbed streets.
2. New road construction and graveling.
3. Grading and graveling streets.

The following newly curbed streets were excavated where necessary and gravelled:-

<u>Location</u>	<u>Lineal Feet</u>
Smythe Street (Dundonald Street to Edinburgh Street)...	825
Wilmot Court	590
Saunders Street (Rookwood Avenue to O'Dell Avenue)....	1,012
Byng Street	578
Church Street	335
Smith Street	475
Jaffrey Street	330
Tamarack Terrace	390
Aberdeen Street	<u>350</u>
Total Lineal Feet.....	<u><u>4,885</u></u>

2. Under this heading a considerable number of new streets were constructed or partially constructed and gravelled this year and the locations are as follows:-

<u>Location</u>	<u>Lineal Feet</u>
Highland Avenue	1,300
Dayton Court	290
Squires Street	434
Mitchell Street	375
Beaverbrook Court	540
Dundonald Street	1,260
Green Road	1,010
Wright Street	330
Hillcrest Drive	<u>1,300</u>
Total Lineal Feet....	<u><u>6,839</u></u>

Under this heading the culverts at Friel and Grieves Creek were lengthened by the addition of 52' of 48" concrete pipe at Friel Creek and 88' of 48" concrete pipe at Grieves Creek which was required to widen the street at these two locations to a 66 foot width right of way at street level. The cost of the above projects was \$8,071.70.

In addition \$1,365.86 was expended for the construction of a retaining wall on the north side of Woodstock Road at Phyllis Creek and the sidewalk was rebuilt and raised two feet on the north side.

3. The following streets were also gravelled under this heading:-

<u>Location</u>	<u>Lineal Feet</u>
Smythe Street (Green Rd. to Montgomery St.) ...	1,715
Hanson Street	1,000
Crerar Court	345
York Street	1,560
Fenety Street	290
Hazen Street	130
Loyalist Court	200
Valley View Court and Street	380
MacFarlane Cemetery (Carney Street)	200
Rookwood Avenue	<u>750</u>
Total Lineal Feet.....	<u>6,570</u>

The gravel used under this heading was obtained from the following:-

	<u>Crushed Gravel</u>	<u>Base Gravel</u>	<u>Fill</u>
Forbes & Sloat	14,481.49 tons		
Douglas Saunders ...		11,419.36	5684 yards

The cost of the crushed gravel was \$1.25 per ton; pit-run gravel 65¢ per ton and fill @ 65-75¢ per cubic yard.

CAPITAL ACCOUNT - STREET LIGHTS

Expenditure \$ 387.70

The above expenditure is made up as follows:-

Maritime Electric Co. (Labor and trucking, transferring Series Street Lights to the other side of the Street on Highland Avenue)	\$ 93.49
H. S. Gill Ltd. (To Maritime Electric Co. Sawing Cedar Logs)	100.00
Maritime Electric Co. (Labor and trucking installing 1-250 C. P. Series Street lighting unit on Hawthorne Terrace)	8.38
Maritime Electric Co. (Labor and trucking installing 1-250 C. P. Series Street Lighting unit on Crerar Court)	41.92
Maritime Electric Co. (Labor and trucking removing 250-C. P. Series Street lights and installing 600 C. P. on Saunders Street between O'Dell Avenue and Rockwood Avenue)	58.81
Maritime Electric Co. (Labor and trucking installing 1-250 C. P. Series Street light on Miles Street and also running in a short piece of cable at the corner of Hughes and Union Streets)	39.35
Maritime Electric Co. (Labor and trucking installing 1-250 C. P. Series Street lighting unit at the corner of Windsor Street and Green Road near entrance to U. N. B. Trailer Park)	14.75
Journal Voucher (Rental on Grader, 4 hours and shovel, 1 hour)	<u>31.00</u>
TOTAL	\$ 387.70

LOCAL IMPROVEMENT

In 1957 services were installed at the following locations under the Local Improvement By-Law:-

<u>Location</u>	<u>Services</u>	<u>Cost</u>	<u>Subdivider's Share at By-Law Rates</u>	<u>Cost to City of Fredericton</u>
Montgomery-Campbell subdivision	Water Domestic Sewer Storm Sewer Gravel Road	Installed at City Cost in 1956 \$ 4,155.34 5,748.84 7,163.69	\$ 2,801.50 3,407.00 1,724.00	Main Supply line to Regent St. \$ 1,353.84 2,341.84 5,439.69
Green Road	TOTAL COST	<u>\$17,067.87</u>	<u>7,932.50</u>	<u>9,135.37</u>
Pond Subdivision	Water Domestic Sewer Storm Sewer Gravel Road	1,330.84 610.65 2,137.67 1,998.52	278.25 341.25 412.50 465.00	1,052.59 269.40 1,725.17 1,533.52
Dayton Court	TOTAL COST	<u>\$ 6,077.68</u>	<u>1,497.00</u>	<u>4,580.68</u>
Budovitch Subdivision	Water Domestic Sewer Storm Sewer Gravel Road	4,379.41 1,300.01-In- complete 2,048.04 1,020.54	1,514.41 1,804.88 2,138.73 1,666.05	2,865.00 ---- ---- 2,865.00
Mitchell & Squires Sts.	TOTAL COST	<u>\$ 8,748.00</u>	<u>7,124.07</u>	<u>2,865.00</u>
Wilmet Apts. Ltd. Wilmet Court	Water Domestic Sewer Storm Sewer Gravel Road	No charge - Used existing line No charge - Installed by owner - 1956 1,779.47 1,851.13	1,797.50 1,566.00	---- 285.13
	TOTAL COST	<u>\$ 3,630.60</u>	<u>3,363.50</u>	<u>285.13</u>
TOTAL COST OF LOCAL IMPROVEMENT....		<u>\$ 35,524.15</u>	<u>\$ 19,917.07</u>	<u>\$ 16,866.18</u>

Under Cost Column, Engineering, Pension, Workmen's Compensation, Holiday and Sick Leave costs have not been taken into consideration. To get a true picture of the cost, at least 10% should be added to include these items.

PUBLIC WORKS

Gross Expenditure	\$ 21,420.43
Credits	44.02
Net Expenditure	\$ 21,376.41
1957 Appropriation	<u>20,000.00</u>
DEBIT	<u>\$ 1,376.41</u>

The Credits of \$44.02 are made up as follows:-

Fredericton Exhibition Co. (Plowing Race Track with Grader)	\$ 9.20
J. F. Bailey Motor List Co. Ltd. (Sale of Map of City of Fredericton)	2.23
Department of Public Works Provincial Government (Painting traffic lines at Parliament Buildings)	19.63
Dominion Stores Ltd. (Sale of White Prints)	10.56
Central Mortgage and Housing Corporation Ltd. (Sale of Map of Water and Sewer, City of Fredericton)	<u>2.40</u>
TOTAL	<u>\$ 44.02</u>

The labor charge under the Public Works expenditure
was incurred for the following:-

Trees	\$ 4,400.32
Surveying	1,529.55
Back Drain	524.95
Surface Sewer	16.96
Old Burial Ground	1,351.31
Unforseen Account	<u>2,486.60</u>
TOTAL	<u>\$ 10,309.69</u>

Trees:-

The labor cost of \$4,400.32 under this item was
for cutting, pruning, spraying and the planting of
new trees.

The City purchased this year from Bunbury Nursery
at Charlottetown, the following trees and these were
planted by City Workmen:-

25 Norway Maples 8-10' @ \$ 2.75	\$ 68.75
25 Crimson King 7-8' @ \$ 3.25	81.25
25 Silver Maple 8-10' @ \$ 2.75	<u>68.75</u>
TOTAL	<u>\$ 218.75</u>

The above trees were planted at the following locations:-

Connaught Street, York Street to Smythe Street
Albert Street, York Street to Connaught Street
Rookwood Avenue
Woodstock Road, O'Dell Avenue to City line
Waterloo Row (Filled in Blank Spaces)

Considerable interest is being shown in the City shade trees by our citizens. During 1952, a committee of citizens under the chairman of a city alderman was formed to act in an advisory manner. The chairman of this committee this year was Alderman Charles Weyman, later changing to Mr. Charles Smith. This committee is made up mostly of Foresters and others who have a professional knowledge of tree culture.

The City Tree Commission this year recommended the purchase of a Mist Blower at a cost of \$3782.70 for spraying the trees to combat the infestation of the Fall Cancer Worm, which in other years has done considerable damage to the foliage of the Elm tree.

The Blower was purchased and areas mostly below Regent Street were sprayed with a D.D.T. solution. The result of this spraying has been a high mortality of the Fall Cancer Worm, according to counts made by Mr. C. C. Smith, Chairman of the Tree Commission.

The Blower was also purchased for an infestation of the Bark Beetle which carries the Dutch Elm disease. This disease is a very dreaded one and must be controlled in the early stages for effective sanitation and prevention of a high loss in the Elm tree population.

In an effort to eliminate the breeding grounds of the Bark Beetle, an increased drive was put on in 1957 to remove as many old and decadent trees as possible.

Some forty trees were removed in 1957 and at the time of writing this report some forty more trees have been tagged by the Chairman of the Tree Commission for removal.

The removal of dead wood from the trees was carried out in the spring and fall, which are the recommended seasons for pruning. The trees on Charlotte Street, Smythe Street and a portion of George Street were pruned and dead wood removed as well as those limbs that were overhanging the houses of individual citizens, who called to have the limbs removed.

There is considerable more tree work to be done and every effort will have to be put forth in 1958 to bring the surgical maintenance of trees up to date.

Following is the amount of material used in spraying and obtained from the New Brunswick Apple Exchange Co.:-

1664# of 50% D.D.T.	\$ 504.11
1 Gallon 2-4-5 T. Brush Kill	<u>13.00</u>

TOTAL\$ 517.11

Surveying:-

The labor charge of \$1,529.55 under this heading was for wages for helpers with the Engineers during the course of their work during 1957.

Back Drain:-

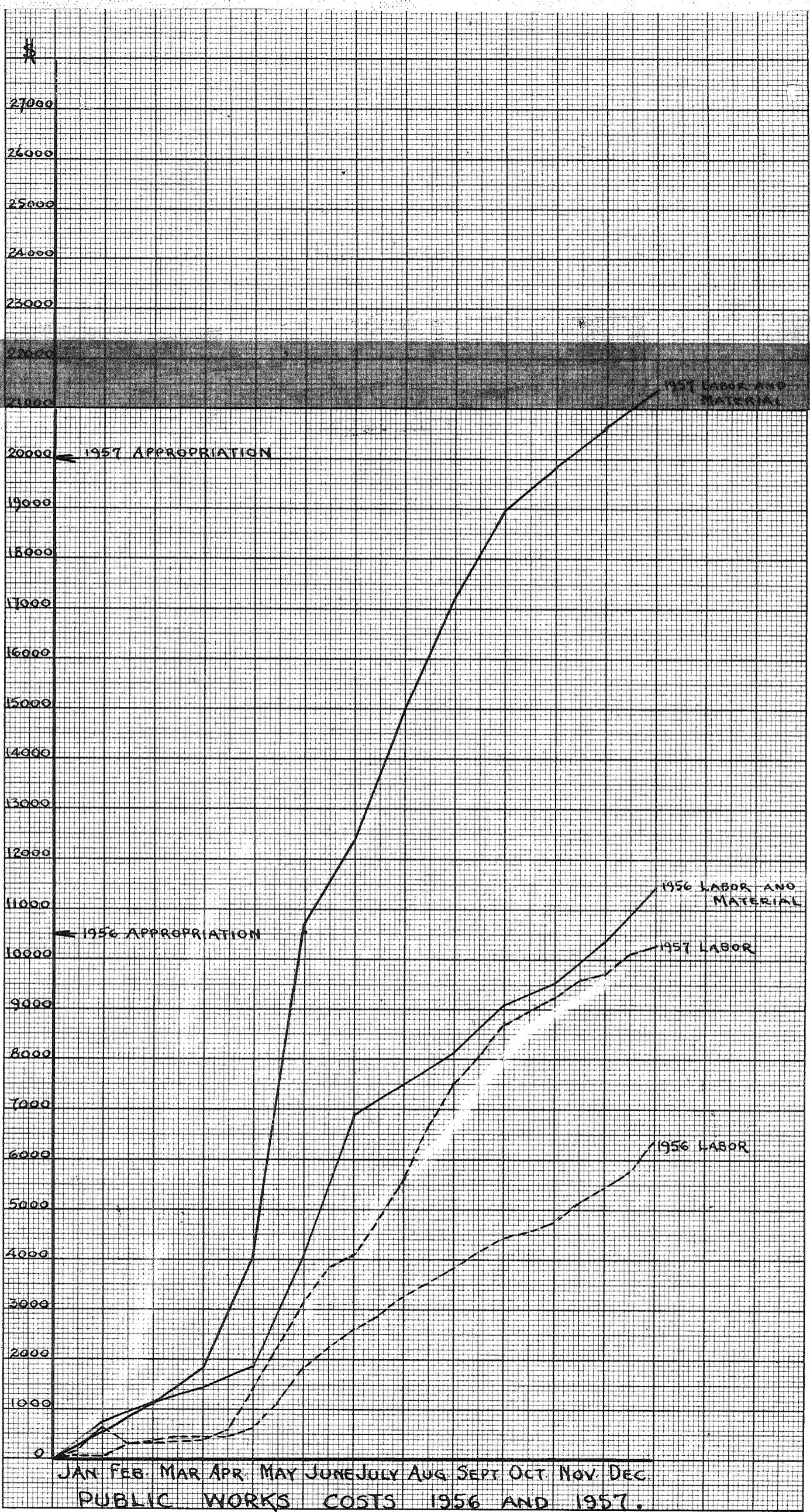
The labor charge under this heading amounts to \$524.95 which was for cutting ice away from the culverts on York, Dundonald and the outlet at Phyllis Creek during the winter and for general maintenance to the Back Drain.

Old Burial Ground:- *Separate - 1958*

The labor expenditure of \$1,351.31 was used in maintaining the old Burial Ground in the centre of the City.

Unforseen Account:-

Preparing for Civic Election	\$ 54.22
Plowing Race Track for Exhibition Co....	2.70
Union delegates to meeting with City Council Committee)	14.34
Benches (Repair, Painting, Etc.)	72.62
Greens (Cutting, Raking, Seeding, Fill). .	1,692.20
Cleaning River Bank (Cutting bushes, etc)	329.36
Cleaning Fraser Mills site	110.54
Erecting Lord Beaverbrook Statue	58.41
Hauling Water to Victoria Mills	7.47
Repairs and Painting Speakers Stand at Cenotaph	42.81
Cutting Bushes, Acacia Court	24.77
Labor at Children's Home	42.36
Christmas Tree	14.88
Parking lot rear of City Hall	19.92
TOTAL	\$ 2,486.60



HUGHES OWENS 404G

HUGHES OWENS 404G

O'DELL PARK

Expenditure \$ 3,665.46

The above expenditure was made up as follows:-

Wesley Jewett (Cutting Hay)	\$ 43.50
Workmen's Compensation Board	104.50
John Gibson & Sons (Feed for Horse)	29.50
Mussens Ltd. (Rental of Chain Saw)	6.18
Kilburn Equipment Ltd. (Purchase of Chain Saw)	271.06
Frank Hunt (Labor on Comfort Stations)	38.80
James H. Thomas (Labor on Comfort Stations)	38.80
Lockhart Woodworker's Ltd. (Lumber for Comfort Stations)	139.27
H. S. Gill (Lumber for Comfort Stations)	8.14
Rural Equipment Ltd. (Chemical Toilets)	52.22
Crane Ltd. (Seats for Chemical Toilets)	10.03
D. W. Currie (Trucking Gravel)	6.55
G. A. Libbey Jr. (Trucking Gravel)	3.59
Patrick Webb (Trucking Gravel)	6.74
F. H. Smith (Trucking Gravel)	7.44
D. Saunders (Trucking Gravel)	19.18
Forbes and Sloat Ltd. (Crushed Gravel)	92.44
W. A. Jewett (Baling Hay)	35.00
J. S. Neill & Sons Ltd. (Miscellaneous Hardware)	46.66
N. B. Telephone Co. (Telephone Service)	42.00
Journal Voucher (Caretaker's Wages)	<u>2,663.86</u>
TOTAL	<u>\$ 3,665.46</u>

Included in the above expenses was the purchase of 1-Model 19A, Serial #193428 P. M. Chain Saw at a cost of \$265.50 from Kilburn Equipment Ltd., plus spare parts amounting to \$5.65. Total Cost, \$271.06.

CARLETON WARD PARK

Expenditure \$ 5,374.68

A new park area was graded, top-soiled, seeded, a gravelled parking area constructed and the grass was mowed during 1957, on the river side of Union Street, adjacent to the prolongation of Gibson Street.

This Park area was planned by the Park Committee of the Town Planning Commission and the area is under lease from the Canadian Pacific Railway for a period of ten years.

There is considerable more work to be done on this Park site, if the plan of the Commission is to be followed.

Walk paths and the planting of trees at various locations in the Park are a part of the overall plan and this phase of the work is planned for the spring of 1958.

Included in the above expenditure is the yearly rental of the area which amounts to \$300.00.

RECREATION

Expenditure \$ 451.27

The above expenditure does not include all playground expenditures, but only those which appear on department pay-rolls or costs of materials ordered through this office. The salaries of the Recreation Director and Playground Supervisors hired for the summer months is not in the above costs, nor does the cost of the equipment on the playgrounds appear here.

The above costs are divided as follows:-

Playgrounds (Labor and Machinery)	\$ 285.11
Journal Voucher (Gas and Oil used by Recreation Truck)	<u>166.16</u>
TOTAL	<u>\$ 451.27</u>

The Bathing Beaches were not officially opened for children swimming this year.

CITY HALL

Expenditure \$ 8,102.44

The above cost is only the expenditure for City Hall made through the City Engineer's Department and is not the total expenditures made on City Hall.

The expenditure of \$8,102.44 is divided as follows:-

Labor at City Hall, including winding and repairs to clock, night fireman, extra janitor and extra labor for installing furnaces	\$ 3,499.79
Repairs (City Hall and Water Fountain)	263.18
Light Bill for City Offices	1,823.50
Supplies, etc	82.75
Imperial Oil (11,694.9 Gallons Furnace Oil)....	2,399.97
Journal Voucher (Material)	29.25
Journal Voucher (Machinery)	<u>4.00</u>
TOTAL	<u>\$ 8,102.44</u>

This year two electric oil-fired furnaces were installed in the City Hall.

MUNICIPAL HOME

Expenditure\$ 11.88

This expenditure is of course only part of the Municipal Home costs, but is the expenditure which was made through the office of the City Engineer and is therefore shown in this report.

The above expenditures of \$11.88 was to repairing furniture at the Municipal Home

SWIMMING POOL - QUEEN'S SQUARE

Expenditure\$ 913.86

The above cost is only the expenditure for Swimming Pool made through the City Engineer's Department and is not the total expenditure made on the Swimming Pool.

The above expenditure is made up as follows:-

Journal Voucher (City Labor)	\$ 195.46
Journal Voucher (Machinery)	172.90
C. J. Toner	1.00
D. Saunders (726 yards of Fill @ .75¢ per yard)	<u>544.50</u>
TOTAL	<u>\$ 913.86</u>

The above Swimming Pool was constructed by the Anric Engineering Company at a contract price of \$19,000.00.

SANITATION

Expenditure \$ 26,467.43

This expenditure is only part of the total Sanitation costs. It is only the expenditure which was made through the office of the City Engineer and is therefore shown in this report.

The expenditure on Sanitation has been kept under two headings, namely:- City Dump and City Incinerator.

The City Dump has one dump tender. One of the City's bulldozers works on the dump from time to time helping the dump tender keep the dump in order. The total expenditure on the dump this year was \$3,710.38.

The City Incinerator is tended by two men who work a daily shift of nine hours, starting at 7:30 A.M. and finishing at 5:30 P.M. Besides these two attendants, extra city labor was used in bulldozing incinerator dump, shifting tracks, etc. The total expenditure for City Incinerator was \$22,756.55.

The contract for Garbage collection is held by Mr. J. Coates at a yearly cost of \$36,300.00.

In 1957 the Incinerator was completely overhauled by Francis Hankin and Co. Ltd., the contractors for the original incinerator.

The cost of this overhaul was \$12,700.00 and included the replacement of the top 25 feet of the chimney and complete relining of the same. The furnaces were completely dismantled and rebuilt.

The Incinerator is too small for the amount of material that is being burned, consequently the operators have to force the burning to keep ahead of the material that is being left at the Incinerator to be burned. The result of the forced burning is higher temperatures which shorten the service life of the furnaces, etc.

An extra man now works at the Incinerator at night, cleaning out the ashes, etc. from the day's burning. This allows the operators a longer burning day and has improved the service considerably.

The Dump site is gradually approaching the day when a new site must be found. The bulldozing of dumped material is close to the Corbett Brook which flows through the area and a new area should be obtained and the old site reclaimed as a recreation area or some other use.

While the Incinerator was being overhauled, a sanitary land fill was begun on private land on Irvine Street. After a few difficulties were overcome, the operation became very successful. A Sanitary Land Fill was also carried out on Pony Club property on the Hanwell Road with Diamond Construction Company supplying the bulldozer and the City supplying the fuel and operator. In both areas excess material was used from the sites to cover the garbage.

The cost of Sanitary land fill is higher than by Incinerator disposal, however when one considers the value of areas reclaimed it is a worthwhile venture.

The cost of the Sanitary Land Fill for the period April 11, 1957 to June 6, 1957 was \$1,859.63. The cost of Incinerator disposal for the same period would have been approximately \$1,100.00 plus wear and tear on the plant.

SEWERAGE DOMESTIC

Gross Expenditure	\$ 18,989.26
Credits	<u>7,163.79</u>
TOTAL	<u>\$ 11,825.47</u>

The above credits are made up as follows:-

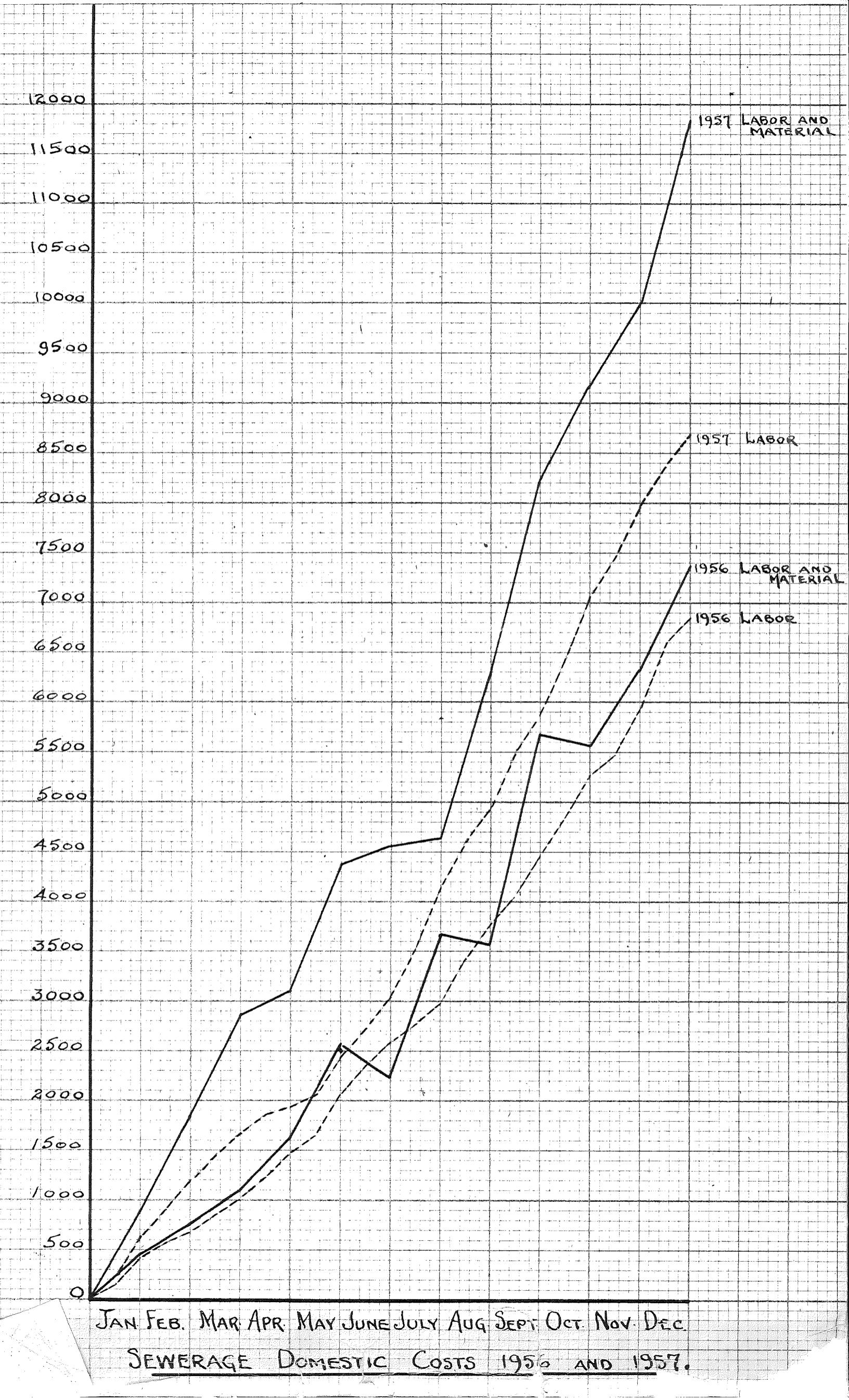
Material and Labor supplied for house connections	\$ 6,845.91
Creighton-Motors Ltd. (Cleaning Floor Drains)	3.75
Diamond Construction Co. (Cleaning Sewer at Hangar, Union Street).....	9.17
Journal Voucher (Sale of 212 feet of 5" T. C. Pipe)....	106.00
Journal Voucher (Sale of 1652 lbs. Sewertile Compound). .	<u>198.96</u>
TOTAL	<u>\$ 7,163.79</u>

New customers connected to City Sewer System this year were 88.

No Domestic Sewer extensions were made this year under this heading but appear under "Capital Account, Sewerage Domestic."

The Fredericton Domestic Sewer system consists of 41.62 miles (10.59 miles in Carleton Ward and 31.03 miles in the City proper) of Sewer Mains and made up as follows:-

24" T. C. Pipe54 miles
18" T. C. Pipe	1.29 miles
15" T. C. Pipe	1.63 miles
12" T. C. Pipe	6.12 miles
10" T. C. Pipe92 miles
8" T. C. Pipe	<u>31.12 miles</u>
TOTAL	41.62 miles



STREET LIGHTS

The City Street Lighting System at the present time consists of:-

1. A Series Lighting System which lights most of the City on the south side of the St. John River.
2. A Multiple lighting system.
3. A Multiple lighting system in the C.N.R. Subway.
4. A Series lighting system in Carleton Ward.

SYSTEM NO. 1

The series lighting system consists of some 22.48 miles of line and 359 lamps. This system is divided into five circuits, one of which is controlled by a 25 K. W. constant current transformer, the other four of which are controlled by a 15 K. W. constant current transformer. Four of these transformers along with the main switchboard are housed in a building, the site of which was purchased from Willett Fruit Company on Carleton Street, south of Needham Street. The fifth transformer is on a pole situated on Regent Street, between Green Road and Albert Street and controls the rear circuit for Maryland Heights.

Due to the change in location of the sub-station to the new building on Carleton Street, the circuits were changed.

The five circuits are made up as follows:-

<u>Lower Front Circuit</u>	<u>Transformer Size</u>
35-600 C.P. Lamps @ .350 K.W. demand	12.25
18-250 C.P. Lamps @ .160 K.W. demand	2.88
	<u>15.13</u> K.W.
	15 K.W.
<u>Lower Rear Circuit</u>	
2-600 C.P. Lamps @ .350 K.W. demand	.70
49-250 C.P. Lamps @ .160 K.W. demand	7.84
	<u>8.54</u> K.W.
	15 K.W.
<u>Upper Front Circuit</u>	
10-600 C.P. Lamps @ .350 K.W. demand	3.50
35-250 C.P. Lamps @ .160 K.W. demand	5.76
	<u>9.26</u> K.W.
	15 K.W.
<u>Upper Rear Circuit</u>	
23-600 C.P. Lamps @ .350 K.W. demand	8.05
103-250 C.P. Lamps @ .160 K.W. demand	16.48
	<u>24.53</u> K.W.
	25 K.W.
<u>Maryland Heights</u>	
84-250 C.P. Lamps @ .160 K.W. demand	13.44 K.W.
	15 K.W.

SYSTEM NO. 2

The multiple lighting system consists of 384 units made up of 232 units of 500 Watts, 135 units of 200 Watts and 17 units of 400 Mercury Vapor lamps.

The 232 units of 500 Watts are located as follows:-
13 on Waterloo Row; 1 on Elmcroft Place; 132 on King Street, Queen Street, Brunswick Street and cross streets including part of Campbell and York Streets; 22 on Woodstock Road; 6 on George Street; 6 on Regent Street; 21 on University Avenue; 2 on Charlotte Street; 5 on Alexandra Street; 7 on Rookwood Avenue; 4 on Woodfield Court; 1 on Grey Street; 3 at Wilmot Apartments; 3 on Acacia Court and 6 in Carleton Ward.

The 135 units of 200 Watts are located as follows:-
19 on Forest Hill; 2 on University Avenue; 60 on St. John Road and Wilsey Road; 11 on Woodstock Road and Golf Club Road; 4 on Beaverbrook Street; 8 on Edinburgh Street; 4 on Smythe Street; 2 on Priestman Street; 5 on Connaught Street; 1 on Westmorland Street; 8 on Dunn's Lane; 3 on Hanson Street and 8 in Carleton Ward.

The 17 units of 400 Mercury Vapor lamps are located as follows:-

4 on Regent Street at the Canadian Pacific and Canadian National Railway Crossings and one each at the intersections of Queen and Westmorland, King and Westmorland, Brunswick and Westmorland, Queen and York, King and York, Brunswick and York, Queen and Carleton, King and Carleton, Brunswick and Carleton, Queen and Regent, King and Regent, Brunswick and Regent and at the intersection of Campbell and Carleton at the west end of the highway bridge.

Each of the above units consists of either a 500, 400 Mercury or 200 Watt, 150 Volt lamp set in a novaulex luminas fixture and hung on a bracket attached to the pole; these units being controlled by a control switch which is energized by our series lighting system. This system was installed and is owned and maintained by the Maritime Electric Co., the City paying the company \$60.00 per year for each 500 Watt Unit and \$40.00 per year for each 200 Watt unit.

Included in the total of the above multiple fixtures, the Maritime Electric installed in 1956, 4 Mercury Vapor Lamps at Regent Street and 13 Mercury Vapor lamps at the intersection of the main business area at a cost of \$93.00 per lamp per year.

SYSTEM NO. 3

System No. 3 consists of six multiple lights, each of 150 Watt strength, located in the C.N.R. Subway. This system is also controlled by a control switch which is energized by the series lighting system.

SYSTEM NO. 4

System No. 4 is a series lighting system which had formerly been installed in the Town of Devon and consists of 8.59 miles of line and 176 lamps. This system is composed of two circuits which are controlled by two 15 K.W. constant current transformers located on a pole platform on Pine Street.

<u>Carleton Ward (Down)</u>	<u>Transformer Size</u>
81-250 C.P. Lamps @ .160 K.W. demand	12.96 K.W. 15 K.W.
<u>Carleton Ward (Up)</u>	
95-250 C.P. Lamps @ .160 K.W. demand	15.20 K.W. 15 K.W.

The power for system 1, 3 and 4 is purchased from the Maritime Electric Company at a contract price as agreed upon in a contract between the Maritime Electric Co. and the City, made in 1957. This contract also covers the maintenance cost of \$20.00 per year per mile of pole line which is paid by the City to the Company.

All materials such as wire, poles, pole fixtures, lamps, lamp fixtures, transformers, etc. are paid for by the City, installed by the Company, under their contract price for maintenance. Any new installations which require an enlargement of circuits must be paid for by the City, both labor and material.

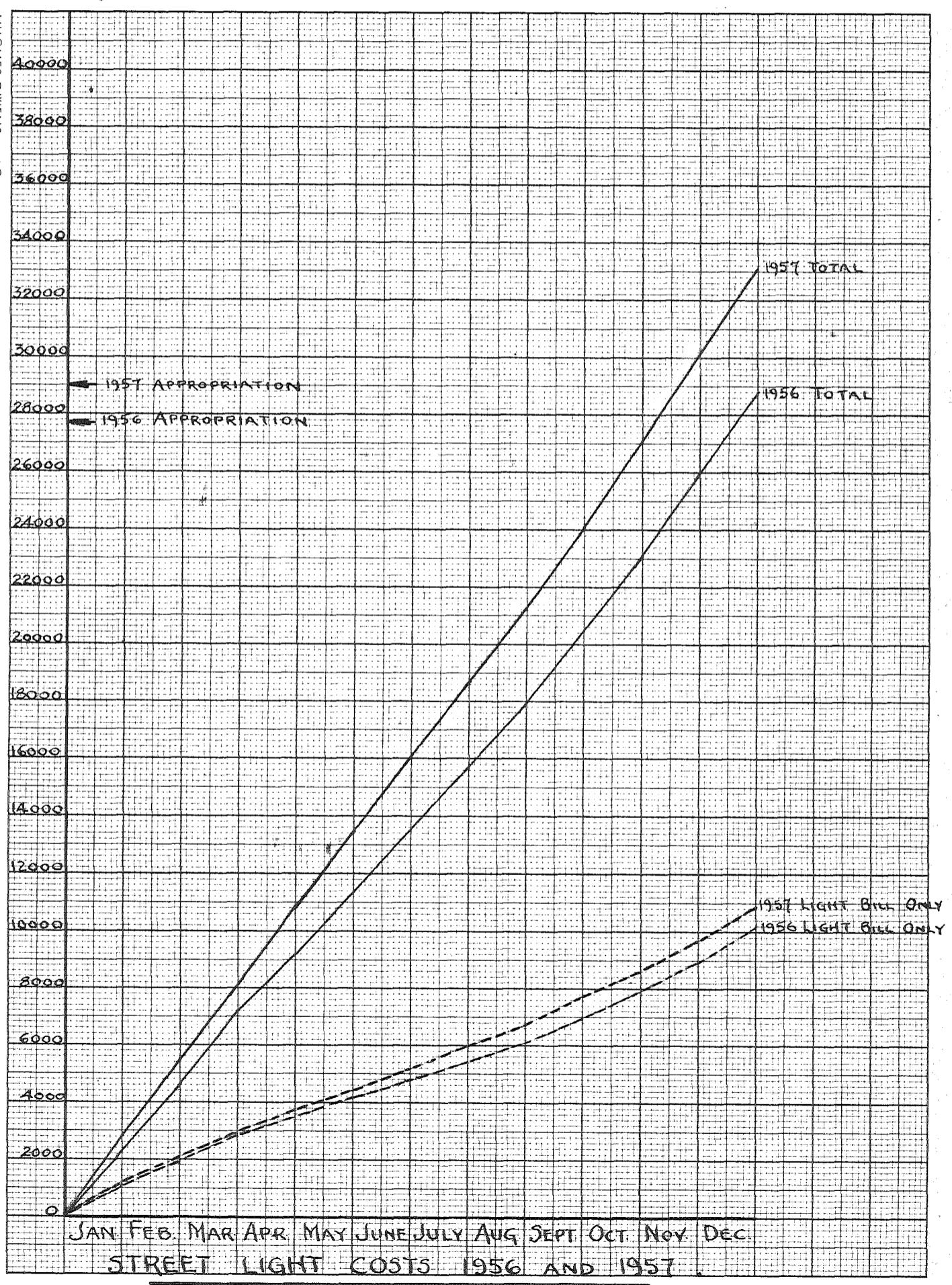
The Street Lighting costs for the year 1957 were as follows:-

Net Expenditure	\$ 33,101.56
1957 Appropriation	<u>29,000.00</u>
Debit Balance	<u>\$ 4,101.56</u>

The Street Lighting Expenditure of \$33,101.56 is made up as follows:-

156 - 600 C. P. Series Lamps	\$ 172.59
2 - 500 C. P. Lamps	4.08
1176 - 250 C. P. Series Lamps	793.78
1 - 200 C. P. Lamp50
7 - 150 C. P. Lamps	2.38
Current in Subways and Series Lighting, Jan. 1, 1957 to December 31, 1957	10,818.46
Charges on Multiple Fixtures owned and operated by the Maritime Electric Co. @ \$40.00, \$60.00 and \$93.00 per light per year	20,245.79
Maintenace and contract of pole line	626.88
Maintenance of lamp fixtures, including only such articles as lamp standards, lamp brackets, heads, sockets, shades, cutouts, time switches, etc.	92.15
Material and labor used in major repairs and new installations (New Carleton St. Station)	179.74
Cenotaph Light Bill	100.69
Miscellaneous (Revising Series Lighting Map, Use of City machinery and labor, etc.)	64.52
TOTAL	<u>\$ 33,101.56</u>

HUGHES OWENS 404G



The total per capita charge for Street Lighting for 1956 population of 18,303 as per the 1956 census is:-
33,101.56 = \$1.80.
 18,303

TABLE SHOWING COMPARATIVE YEARLY COST IN
 STREET LIGHTING

<u>Year</u>	<u>Total Yearly Cost</u>	<u>Yearly Appropriation</u>
1943	11,033.89	10,000.00
1944	10,675.80	10,000.00
1945	10,682.22	10,000.00
1946	11,611.45	12,000.00
1947	12,530.94	15,000.00
1948	15,269.12	15,000.00
1949	15,720.93	16,000.00
1950	25,300.30	20,000.00
1951	23,843.42	20,000.00
1952	25,211.39	25,000.00
1953	25,487.71	27,000.00
1954	23,812.54	27,000.00
1955	28,542.77	27,000.00
1956	31,877.10	27,700.00
1957	33,101.56	29,000.00

CEMENT WALKS

Included in the above heading are:-

1. Concrete Walks Ordinary \$ 20,277.61
 2. Concrete Walks Special 3,024.12

TOTAL \$ 23,301.73

1. For the above expenditure of \$20,277.61, concrete sidewalks were laid at the following locations:-

<u>Location</u>	<u>Lineal Feet</u>
Woodstock Road, west side line of Catholic Burial Ground to Golf Club Road (north side)	1,160
MacLaren Avenue, west property line of Central Mortgage & Housing property to Hughes Street	139
Woodfield Court (north side)	1,122
Woodfield Court (south side)	943
Smythe Street, Connaught St. to Edinburgh St. (east side)	534
Smythe Street, Dundonald St. to Connaught St. (east side)	384
Smythe Street, Victoria St. to Dundonald St. (east side)	358
Smythe Street, C.N.R. to Victoria St. (east side)	117
Smythe Street, from C.N.R. towards north (east side)	39
Connaught St., Albert St. to Smythe St. (south side)	840
Westmorland St., Dundonald St. to Connaught St. (east side)...	369
Forward	6,005

<u>Location</u>	<u>Lineal Feet</u>
Brought Forward	6,005
Connaught St., Westmorland St. to York St.(north side)...	646
Connaught St., Westmorland St. to Albert St.(south side).	451
Albert Street, York St. to Connaught Street (north side).	1,262
Rookwood Ave., Parkhurst Drive to Woodfield Court (west side)	832
Wilmot Court	440
Saunders St., Rookwood Ave., to O'Dell Ave. (north side).	1,017
Rookwood Ave., Parkhurst Dr. towards Woodstock Road (west side)	215
Queen Street, along east side of Sobeys Store	169
Miscellaneous, in front of Valley Food Store,	
University Avenue and Shore Street, Victoria St.,	
Dundonald Street, University Avenue, Regent St.,	
Parkhurst Drive, Churchill Row	501
TOTAL	<u>11,538</u>

The cost of the above sidewalks were paid, one-half by the City and one-half by the property owner with the exceptions of the miscellaneous locations and on Queen Street, along the east side of Sobey's Store.

2. For the above expenditure of \$3,024.12, concrete sidewalks were laid at the following locations:-

<u>Location</u>	<u>Lineal Feet</u>
Kitchen Street (west side)	1,157
Chestnut Street (west side)	869
Beckwith Street (north side)	285
TOTAL	<u>2,311</u>

The cost of the above sidewalks were paid for by the City due to an agreement entered into with the Central Mortgage and Housing Corporation in 1946.

The concrete for the above construction of sidewalks was obtained from Blakeny Concrete Products Ltd. at a cost of \$14.50 per cubic yard.

The total cost for laying the above lineal feet of concrete sidewalk was \$1.68 which was obtained by dividing the total lineal feet, 13,849 into the total cost, which was \$23,301.73.

CITY SCALES

Expenditure \$ 271.75

The above expenditure is made up as follows:-

Maritime Electric Co. (Light Bill)	\$ 27.85
Carl McNabb	3.50
James S. Neill77
British American Oil Co. Ltd.	42.24
Paul Burden Ltd.	5.10
Journal Voucher (City Labor)	<u>192.29</u>
TOTAL	<u>\$ 271.75</u>

The wages of the weigh scale operator do not appear in the above expenditure. The expenditure is not made through the office of the City Engineer and is therefore not shown in this report.

WILMOT PARK

Expenditure \$ 2,122.73

The above expenditure is made up as follows:-

Labor and Trucking at Wilmot Park	\$ 1,374.98
Material used on Lawns and Flower Beds	72.95
Supplies and Repairs to Lawn Flowers, etc.....	180.62
Telephone	42.00
Miscellaneous (tools, etc.)	18.84
Repairs to Caretaker's House)	198.02
Journal Voucher (Holidays, etc.)	<u>235.32</u>
TOTAL	<u>\$ 2,122.73</u>

Included in the above expenditure was the installation of a sink and cabinet in residence of the Caretaker at Wilmot Park at a cost of \$125.00 and the purchase of an 18" power mower at a cost of \$150.00.

CHILDREN'S HOME

Expenditure \$ 15.33

The above expenditure is made up as follows:-

Federal Hardware Ltd. (1 Screen Door Set, 4 yards Screening, 2 box tacks)	\$ 8.43
Federal Hardware Ltd. (Window cleaner, putty, points and glass)	6.57
Federal Hardware Ltd. (2 lbs. nails)33
TOTAL	<u>\$ 15.33</u>

Labor charges of \$42.36 were paid for by Public Works Account.

FIRE DEPARTMENT

Expenditure \$ 8,514.41

Journal Voucher (1856.525 Gallons Gasoline)	\$ 576.41
Journal Voucher (331 hydrants @ \$2.00 per month)	<u>7,938.00</u>

TOTAL \$ 8,514.41

ADMINISTRATION OF JUSTICE

Expenditure \$ 2,637.87

The above expenditure is made up as follows:-

Federal Hardware	\$ 1.55
J. L. Simms	8.78
James S. Neill & Sons Ltd.	59.67
H. S. Gill	11.73
E. M. Young	21.75
Forbes and Sloat (Crushed Gravel)	9.14
F. H. Smith (Hauling Crushed Gravel)	4.30
Journal Voucher (City Labor)	686.42
Journal Voucher (14 Bags Cement)	19.60
Journal Voucher (City Machinery)	107.50
Journal Voucher (5507.75 Gallons Gasoline)	<u>1,707.43</u>

TOTAL \$ 2,637.87

Some of the Parking Meters in the business section were replaced and repaired this year by City Workmen.

AIRPORT

Expenditure \$ 67.33

The above expenditure is made up as follows:-

Journal Voucher (4 Bags Malagash Salt)	\$ 4.08
Journal Voucher (2 hrs. Compressor @ \$3.50 per hour)..	7.00
Journal Voucher (25 City of Fredericton Decals @ \$2.25 each)	<u>56.25</u>
TOTAL	<u>\$ 67.33</u>

ALEXANDER APARTMENTS

Expenditure \$ 200.28

The above expenditure was the cost incurred in the use of City Labor and machinery for cleaning the grounds at the Alexander Apartments after demolition and shutting off water services to buildings.

JOHN THURSTON CLARK MEMORIAL BUILDING

LIBRARY

The expenditure of \$6.62 for the Library which was made through the office of the City Engineer included the sale of 2 Bags of Cement and the one hour rental on a truck.

PAINT DEPARTMENT

Gross Expenditure	\$ 9,210.31
Credits	<u>17.40</u>
Net Expenditure	\$ 9,192.91
1957 Appropriation	<u>7,500.00</u>
DEBIT	\$ 1,692.91

The above credit was for material used to painting Traffic Lines at the New Brunswick Parliament Buildings.

The above expenditure of \$9,210.31 is made up as follows:-

C. J. Toner (Trucking)	\$ 6.75
Provincial Secretary-Treasurer (3% Sales Tax)	29.45
J. L. Simms and Sons Ltd. (Plywood, etc.)	341.95
J. C. Risteen Co. Ltd. (Lumber)	13.60
Richard's Electric Co. (Rewiring)	218.45
Canadian National Express Co.	4.25
Horsnell's Machine & Iron Works (Standard)	12.88
James S. Neill & Sons Ltd. (Paint)	353.65
Minnesota Mining & Manufacturing Co. (Scotchlite)....	1,530.53
Lockhart's Woodworking Ltd. (Plywood)	411.86
Riverview Service (Naptha)50
Parlee's Woodworking Shop (Filing Saws)	3.00
H. S. Gill & Sons (Lumber)	147.49
Canadian Pacific Express Co.	16.45
Auto Machinery & General Supply Co. (Lag Bolts)	16.83
Federal Hardware (Paint)	26.38
Cameron Grant Inc. (Nefslabs)	88.80
H. W. Wilson Printing Co. (Signs)	50.42
J. Walter Co. (Saw Blades)	8.00
E. M. Young (Paint)	83.43
J. S. DeLong (Silk)	5.97
People's Hardware (Paint)	535.46
Provincial Motor Sales (Parts)	15.30
Fredericton Welding & Machine Shop (Standards)	26.37
Fredericton Tire Service	1.00
Journal Voucher (City Labor)	4,918.89
Journal Voucher (Material)	4.20
Journal Voucher (Machinery)	4.00
Journal Voucher (Holiday & Sick Leave)	97.68
Journal Voucher (698.75 Gallons Gasoline used by trucks and paint machine)	216.73
Journal Voucher (2½ Gallons Antifreeze)	6.93
Journal Voucher (38 Quarts Oil used by Trucks and paint machine)	13.11

WATER

There are two separate water systems in the City of Fredericton.

1. The source of the system which supplies the City of Fredericton on the south side of the Saint John River is a Gravel Wall Well in Wilmot Park known as Well No. 1.

This Well was put in operation on July 30, 1955 and supplies the system, except at very dry periods, when demand for water is high. The make-up water during the dry periods is obtained from the Saint John River through the Filtration Plant which normally acts as a standby.

A new Well (No. 2) was developed in 1957 on Saunders Street and when the pump house and piping, etc. are completed this Well will augment the supply of and alternate with Well No. 1 so that the original filtration plant will be used as an emergency source of water.

To keep the original filter plant in a serviceable condition, the equipment is operated for one-half day each week and the water by-passed to waste.

In order to keep up with the increasing demand for water and to bring the plant up to present day standards, a higher capacity pump was ordered in 1957 and will be installed in 1958. A new switchboard has also been ordered and an improvement will be made in the wiring and starting systems on existing motors, which were installed in 1925. Since that time, one motor has been replaced and that in 1944, so that the original motors and pumps have certainly paid for themselves.

2. The system on the north side of the Saint John River has as its source of supply, three drilled Wells. Two of these Wells are outside the City limits and pump into open reservoirs at elevation 170.0 feet at a rate of 150-175 I.G.P.M.

In 1955 the supply from these 2 Wells was reduced considerably due to a low water table and in fact pumped dry on several occasions, but fortunately supplied enough water to carry through the period safely.

Jas. F. MacLaren Associates were retained as Consulting Engineers to make a survey of the water supply and storage requirements for Carleton Ward. Acting upon the report of this firm and the recommendations of this department, the City of Fredericton entered into a contract with Pius Sullivan to drill a Well on Bridge Street in 1956.

The Well was drilled and developed at a safe yield of 600 I.G.P.M. with a pumping level at 100 feet below the top of the Well casing.

The Well was equipped and connected to existing lines as an emergency standby until such time as the second phase in the overall plan is completed.

The second phase of the overall plan is to construct a 1,000,000 I. G. Reservoir and connecting pipe line.

The construction of this reservoir was commenced in 1957 and should be completed in 1958. The pipe line is almost completed.

The end result will be a much more improved water system in Carleton Ward both from the standpoint of fire protection and pure supply.

The fire protection will be approximately tripled, as far as storage is concerned and the source has been doubled so that the pump on Bridge Street should be able to supply water for any large fire and maintain storage height in the new reservoir.

The pure supply will be ensured since the new reservoir will be enclosed, thus preventing contamination of water, as has been the case of the two open-type reservoirs.

The Well on Bridge Street was drilled to a depth of 400 feet but was plugged at 350 feet since it was found that a higher capacity was obtained above 350 feet.

The pump was purchased from International Water Supply Co. and the bowls were set at 150 feet below the top of the Well casing. It is expected that the pumping level will hold around 100 feet below the top of the casing when the pump is delivering 600 I.G.P.M.

The total cost of the above completed Well on Bridge Street, together with connecting to existing water mains is included in this report under "Capital Account Drilled Wells, Carleton Ward - Bridge Street."

The water costs for the City of Fredericton are divided into two headings, namely:- "Water Ordinary" and "Water Pumping Station."

WATER ORDINARY:-

This account takes in all expenditures other than Capital Expenditure for water outside the Pumping Station and Pumping Station grounds and includes all current water expenditures in Carleton Ward. The expenditure under this heading is made up as follows:-

Gross Expenditure	\$ 50,925.96
Credit	<u>14,581.80</u>

Net Expenditure	\$ 36,344.16
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The Credits are made up as follows:-

Work done for and materials sold to private parties when installing a water service over ground other than City property or when the material is to be used on parts of the system which do not belong to the City.....	\$ 6,059.16
Hope Adjustment Bureau Ltd. (Repairs to Hydrant, Church and Queen Streets)	65.78
Kilgour Hamilton Ltd. (Repairs to Hydrant, Charlotte and Westmorland Streets)	79.30
Irving Oil Co. (Thawing Water Service at Hughes Service Station, Union Street)	23.30
Blighty Fish and Chips (Thawing Water Service)	8.38
Town of Oromocto (Sale of 2-5/8" Trident Water Meters and Water Box)	42.85
Thomas Gough (Sale of Pipe, Fittings, Curb Cock and Water Box)	50.20
Kilgour Hamilton Ltd. (Repair to hydrant, Waterloo Row)	96.78
Alfred Smith (Sale of Scrap Metal)	7.00
Town of Marysville (Sale of 2-5/8" Trident Meters)	40.43
Donald Leachman (4- $\frac{1}{2}$ Copper to Copper Fittings)	7.60
Diamond Construction Co. (Sale of Fittings)	4.75
Dominion Experimental Farm (1-#2 Leather Valve Seat)...	6.25
C. W. Ritchie and Sons Ltd.	7.86
Willett Fruit Co. (1-5/8" Trident Meter).....	21.03
Fredericton Housing Ltd. (3-5/8 Copper to Iron Fittings)	3.75
Journal Voucher (Yearly Rental on hydrants)	7,938.00
Journal Voucher (Material)	46.60
Journal Voucher (Labor charged in error)	<u>72.78</u>
TOTAL	<u>\$14,581.80</u>

The Gross Expenditure is made up as follows:-

City Pay Roll for hydrants	\$ 1,835.39
City Pay Roll for Meters	3,135.64
City Pay Roll for Water Ordinary ...	<u>11,584.93</u>

TOTAL PAY ROLLS	\$16,555.96
Material and Other Charges	<u>34,370.00</u>

GROSS EXPENDITURE	<u>\$50,925.96</u>
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No water extensions were laid under this heading but they appear under Capital Account Water.

No new sprinkler systems were installed this year.

There are at present 50 Sprinkler Systems in the City. The City charge for water supplied for sprinkler systems is \$25.00 per year.

Hydrants:- There are in the City, 339 hydrants; 243 hydrants on the south side of the Saint John River and 96 on the north side. The credit for rental charge on these hydrants appears under credits of Water Ordinary.

New hydrants this year were installed at the following locations:-

<u>Number</u>	<u>Location</u>
1	Dayton Court
1	Hillcrest Drive, near intersection with Forbes Street
1	Bridge and Union Streets
2	York Street, between Green Road and Montgomery Street
2	Smythe Street, between Hawthorne Terrace and Montgomery Street
1	Dundonald Street, between Beaverbrook Court and York Street
1	Beaverbrook Court
1	Woodbridge Street
1	Mitchell Street

The following hydrants have been removed:-

- 1 - 4" hydrant in Exhibition Grounds
- 1 - 6" hydrant on Forest Hill near the new overhead being constructed on Forest Hill for Trans Canada Highway

All hydrants in the City were inspected and repairs were made where necessary and winterized.

METERS:- Of all the Water services in the City, 938 are charged under flat rate and 2630 on meter rate, making a total of 3568 services.

The labor cost this year per meter for installing, reading, repairing, etc. is \$1.19.

All meters are read twice a year and bills are sent out twice a year. The meters of 124 customers are read once a month although they are billed twice a year. Those are such customers who ordinarily have large consumptions and where a stopped meter or meter digits turned over without being noticed would mean considerable loss of revenue to the City. All meters on Military Buildings are included in the group of monthly meter readings.

Meters in Store Room, December 31, 1957 are:-

5/8" Meters, repaired and fit for service	23
New 5/8" Meters	19
5/8" Meters to be repaired	--
3/4" Meters fit for service	--
New 3/4" Meters	--
1" new Meters	2
1" meters repaired and fit for service	2
1 1/4" meters repaired and fit for service	4
1 1/4" new meters	7
1 1/2" new meters	9
2" new meters	4

DISTRIBUTION SYSTEM:-

New services installed this year	101
Old services relayed this year	31
Old services repaired this year	--
Frozen services that had to be thawed	49
Services discontinued	6

The Fredericton distribution system consists of 42.36 miles of water main, made up of the following sizes:-

18 inch main	0.98 miles
14 inch main33 miles
12 inch main	1.01 miles
10 inch main	2.33 miles
8 inch main	8.58 miles
6 inch main	24.10 miles
4 inch main	4.76 miles
3 inch main27 miles

This does not include the water main installed by the National Defence at Exhibition Grounds, Military Depot #7 (Woodstock Road), Wilmot Park and Army Garage situated on Wagoner's Lane.

The supply system consists of .36 miles of 14" Cast Iron Pipe, extending from the Well site at Wilmot Park to the Pumping Station and .10 miles of 15" Steel Pipe extending from the Intake Pier in the Saint John River to the Pumping Station.

Also included in the above expenditure was the purchase of the following meters from the Neptune Meters Ltd.

- 25 - 5/8" x 3/4" Trident, C.I.B. cold water meters, straight reading, imperial gallons, complete with couplings.
- 3 - 1" Trident, C.I.B. cold water meters, straight reading, imperial gallons, complete with couplings.
- 3 - 1" x 1 $\frac{1}{4}$ " Trident, C.I.B., cold water meters, straight reading, imperial gallons, complete with couplings.
- 3 - 1 $\frac{1}{2}$ " Trident, C.I.B. cold water meters, straight reading, imperial gallons, complete with companion flanges.
- 3 - 2" Trident, C.I.B. cold water meters, straight reading, imperial gallons, complete with companion flanges.
- 2 - 4" Trident, C.I.B. cold water meters, straight reading, imperial gallons, complete with companion flanges.

The number of meters installed in 1957 was 211.

Three hydrants this year were replaced with new ones, one on University Avenue and two on Union Street and extensions were made to hydrants at various locations throughout the City.

Following are the vehicles used and charged to "Water Ordinary" showing a comparison of repair charges for 1956 and 1957.

<u>Name of Vehicle</u>	<u>Year Purchased</u>	<u>Repairs</u>	
		<u>1956</u>	<u>1957</u>
Chevrolet - 1 Ton	1953	316.00	407.61
Dodge - $\frac{1}{2}$ Ton	1950	325.18	525.12
International - (Pickup)	1957		7.83

Included in the expenditure for "Water Ordinary" is the purchase of one 1957 International S 100 Pick-Up, Serial No. S100-5938C, Motor No. B-2400-7505 C with Pick-Up body, Directional Lights, Heater and Defroster 5-6.70 x 15, 4-ply tires at a cost of \$1,879.75.

WATER PUMPING STATION

Gross Expenditure	\$ 42,465.50
Credits	<u>985.00</u>
Net Expenditure	\$ 41,480.50

The Credit of \$985.00 is made of the sale of 3,000 lbs. of Sodium Silico Fluoride and a cheque from Canadian Industries for return of empty cylinders which had contained liquid chlorine.

The above expenditure is divided as follows:-

City Pay-Rolls for Salaries of employees at Pumping Station	\$ 16,018.87
Work done by other City Employees in and around the Pumping Station	<u>1,295.50</u>

Total City Pay Rolls	\$ 17,314.37
Material and Workmen's Compensation Charges	<u>25,151.13</u>

TOTAL	\$ 42,465.50
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The material cost of \$25,151.13 is itemized as follows:-

Item #1	Light and Power supplied by Maritime Electric Co. (590043 K.W. Hrs.)	\$ 13,399.24
Item #2	Light and Power supplied by Maritime Electric Co. at Well in Park	3,306.94
Item #3	Heating (Victoria Public Hospital, 749210 lbs. of Steam @ \$1.84 per lb.) - \$ 1,378.54	
	2507.1 Gals. Solar heat - 439.98	1,818.52
Item #4	Transformer charges	50.64
Item #5	Liquid Chlorine (900 lbs.)	146.82
Item #6	Sodium Hypo 0901 (25 Gallons)	33.25
Item #7	Diesel Fuel Oil (600 Gallons)	128.40
Item #8	Motor Oil (137 Gallons)	155.98
Item #9	Maintenance and repairs to buildings, machinery and Intake Pier	682.09
Item #10	New installations	2,098.71
Item #11	Supplies, Packing Rags, etc.	306.34
Item #12	Stationery, Forms, Charts, Etc.	177.12
Item #13	Workmen's Compensation	522.49
Item #14	E. W. Hagerman's Salary	1,210.08
Item #15	Lime (180. Bags)	127.09
Item #16	Snowflake Air-Floated Spray hydrate (150 Bags)	127.29
Item #17	Miscellaneous, telephone, trucking, machinery, material from other City departments, etc.	860.13
	TOTAL	\$25,151.13

Following is a short explanation of two of the above items:-

ITEM #4

A new contract was entered into this year with the Maritime Electric Co. for supplying of power to the City of Fredericton, thus eliminating transformer rental.

ITEM #17

Included in the above expenditure of \$860.13 was the amount of \$342.99 which was erroneously charged to Water Pumping Station and should have been charged to Water Ordinary. Also included under this heading was the changing of the location of the Pole line from the No. 1 Well at Wilmot Park to the Pumping Station on Smythe Street.

The Raw Water Well and the Coagulation Basin were both cleaned once in 1957.

Due to the high cost of steam purchased from the Victoria Public Hospital, a new boiler was purchased and installed in the Water Works in 1957 and a boiler room constructed by City labor.

This unit is a completely automatic 20 H. P. Volcano, low pressure boiler and was purchased from James Robertson Co. Ltd. at a cost of \$2,549.25 in 1956.

The connections from the boiler were made by W. J. Bearisto at a cost of \$955.95, the lowest of three bids.

All the windows in the Filter Room and Pipe Gallery were removed and painted and both the interior of the Filter Room and Pipe Gallery were painted in 1957 and all ceilings insulated to reduce heat loss.

At the present time a contract has been awarded for the purchase of a higher capacity pump as well as a new switchboard for the existing pumps with blank space left for proposed future pumps.

Tenders are being advertised for the rewiring of the main pumping station and the rewinding and regrouping of existing motors to change the voltage to 550 Volts from 2300 Volts.

The 550 Volts is the accepted voltage of present day standards and equipment can be purchased for approximately one-quarter the cost of similar equipment at 2300 volts.

The plant will be set up to operate automatically on the ground water supply and manually on the St. John River supply which must pass through the Filter Plant for purification and which will only be used in an emergency; that is, when the Wells are not operating due to failure, etc. or when the demand for water is higher than the Wells can produce or during a prolonged electrical interruption, probably longer than 24 hours.

During a 24 hour interruption, the 2,000,000 Gallon Reservoir will supply the system unless there is a serious break or a fire where a high consumption of water is required.

COMPARISON OF WATER PUMPED & COSTS
For South Side of River
for last nineteen years

<u>Year</u>	<u>Water Pumped Imperial Gallons</u>	<u>Yearly Gross Expenditure at Pumping Station</u>	<u>Pumping Station cost per 1,000 Gals. used, Gross Expenditure</u>
1939	199,662,000	18,144.43	9.1 cents
1940	203,975,000	22,503.35	11.3 cents
1941	222,255,000	19,474.56	8.8 cents
1942	257,205,000	23,400.09	9.1 cents
1943	280,115,000	26,338.50	9.4 cents
1944	295,945,000	22,926.61	7.7 cents
1945	321,355,000	23,990.14	7.7 cents
1946	338,979,000	25,640.43	7.5 cents
1947	319,243,000	37,123.42	11.6 cents
1948	322,339,000	31,050.97	9.6 cents
1949	345,320,000	30,513.39	9.8 cents
1950	372,412,000	44,548.09	11.9 cents
1951	367,130,000	35,058.57	9.5 cents
1952	339,330,000	40,476.10	11.9 cents
1953	351,310,000	36,179.74	10.3 cents
1954	388,540,000	40,403.81	10.4 cents
1955	376,591,000	48,063.07	12.7 cents
1956	448,096,000 (13 Mos.)	41,351.18	9.2 cents
1957	469,185,000	42,465.50	9.0 cents
1958	434,761,000	42,288.36	

This column in the preceding comparison, showing Imperial Gallons pumped, does not include water used from Wells in Carleton Ward.

By taking the average consumption of Carleton Ward as 180,000 Gallons per day, arrived at from a number of test runs, the estimated water pumped for twelve months from these Wells was " 65,700,000 Imperial Gallons.

The total amount of water pumped from January 1st, 1957 to December 31st, 1957 is therefore, for the whole City, 534,885,000 Imperial Gallons.

The total net Water expenditure for the City from January 1st, 1957 to December 31st, 1957 is \$77,824.66.

Therefore the net cost to pump and deliver to the customer, 1000 gallons (Imperial) of Water from January 1st, 1957 to December 31st, 1957 is \$77,824.66 = 14.5 cents.
534,885

All the preceding costs shown under "Water Pumping Station" and "Water Ordinary" do not include the cost of billing and collecting water bills or any other overhead charge included in the City Government Cost, nor do they include bond payment or sinking fund charges.

The Water Pumping Station was, as usual, under the supervision of the Plant Superintendent, Mr. Fred Nason.

Accompanying this report is the report of Mr. E. W. Hagerman, City Analyst, on the Fredericton Water Supply from January 1st, 1957 to December 31st, 1957.

Respectfully submitted,

W.L. Barrett

City Engineer.

56000

54000

52000

50000

48000

46000

44000

42000

40000

38000

36000

34000

32000

30000

28000

26000

24000

22000

20000

18000

16000

14000

12000

10000

8000

6000

4000

2000

0

1957 TOTAL

1956 TOTAL

JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC.

WATER PUMPING STATION COSTS 1956 AND 1957.

FREDERICTON WATER SUPPLY

1957

During the past year, the water supply for Old Fredericton, that part South of the River, was pumped from the Wilmot Park Well. This statement is not absolutely true because a very small proportion was taken from the St. John River, on two or three occasions of excessively high demand.

In cold weather, persons living in poorly insulated houses leave taps running to prevent freezing of pipes. This practice increases the load on the system.

A break in a water main can increase the out flow from the plant beyond the capacity of our one Well.

The amount of water used by the City has been gradually increasing so that the small margin that the Well capacity had over the demand has about disappeared, in fact does disappear under conditions previously mentioned.

Fortunately a second Well has been bored and should be ready for service in the near future. Tests indicate that this new Well will produce more water than the Wilmot Well. This should supply the immediate demand with a margin for expansion.

Judging from past experience water consumption is an ever increasing necessity in a growing community and we may expect soon to find the new Well loaded to capacity so that the older Wilmot Well will be needed to work in conjunction with it. Then if a breakdown should happen to either, the old filter plant will be put back into use.

After using Well water citizens object strongly to the flavour of treated river water.

Since the City is now committed to the use of Wells and since the demand is growing yearly and because the mixture of river and Well water has an objectionable taste, a third Well should be driven as soon as a suitable location for it can be found. Probably two or three years will be required from the planning stage, through the prospecting to the finished Well ready to produce.

The water from the Wilmot Well is of a good quality being clear, cold and practically sterile. Unfortunately it is quite heavily loaded with Carbon Di-Oxide which makes it corrosive. The pH as it comes from the Well is 6.4 to 6.5. To reduce the Carbon Di-Oxide and the corrosive tendency, the water is aerated bringing its pH up to 6.8 - 6.9.

In July 1955 when the Well water was first put into the mains, lime was added to the aerated water to further raise the pH to 7.1 - 7.2. Reports came in complaining of unpleasant tasting water. These complaints were occasional and widely scattered throughout the system. Since there were no bad tastes at the plant it was concluded that the raising of the pH was dissolving old scale from the pipes thus producing the tastes.

About December 1955 it was decided to run without lime for a trial. This gave a water of pH 6.8 which was pumped into the system until August 1st, 1957. At this date the use of lime was resumed as it was decided that the corrosion rate was too high.

Since this date lime to the amount of 7 to 8 parts per million has been used resulting in a water of pH 7.3. The Carbon-Di-Oxide has been reduced to approximately 7 ppm. This should reduce corrosion to a minimum. Few if any complaints about objectionable tastes have been received since resuming the lime treatment. Perhaps the system has become stabilized or perhaps it is due to different lime.

The water is almost sterile as it comes from the ground but a small amount of Chlorine is added to take care of contamination that might occur at breaks in the pipe system.

Approximately 2.5 parts per million of Chlorine are added to the water. This gives a residual of from 0.1 to 0.15 parts per million of Free Chlorine to the water leaving the plant.

No positive results have been found in samples collected in Old Fredericton, that is South of the River, during the past year of 1957.

The supply for Carleton Ward was essentially the same as in previous years, the water being pumped from the Killarney and Range Wells pumping into their respective reservoirs.

A new Well was completed on Bridge Street and connected into the old system. A new main was partially laid up to the new reservoir site. Excavation was completed for a new one million gallon reservoir.

Chlorination of the Killarney reservoir was necessary for short periods this past season. From August 30th to September 12th and again from November 21st to November 29th. Chlorine was added to the Killarney water in sufficient quantities to give a residual of 0.15 ppm at a test point in the Provincial Yard, Killarney Road and 0.1 at the Union Garage, Union Street.

During the summer and fall of 1956 similar conditions existed and were treated in the same way. Last year Coliform bacteria were found in the Well itself. This year no Coliforms were detected in the Well. An old reservoir further downhill than the present one was filled in this Spring. This old unused reservoir has been a receptacle for trash and it may be that drainage from it found its way through cracks in the ledge to our present Well.

From the sanitary point of view the two old reservoirs are unsatisfactory. Both are shallow and uncovered. The Killarney reservoir is within 25 feet of the road. Sticks and other articles are sometimes thrown over the fence into it. Montreal had open reservoirs at one time but they are covered now because perverted people threw things into them, including dead bodies, both animal and human. There is nothing to prevent the same thing happening in our reservoirs.

Both reservoirs being uncovered and shall are heavily infected with a very rapid growing type of algae. The growth is so heavy in Summer that it is necessary to drain and clean it several times in a season. Men must go into the reservoir with brooms and shovels and remove the dead algae. Entrance of workmen into a reservoir requires sterilization of it afterwards. Proper treatment so as to get a complete kill of bacteria and algae might require as much as four or five days contact with the disinfectant, time varying with the tenacity of the organisms. If copper sulphate is used for extermination of algae, the reservoir would need filling with clean water and draining to waste, perhaps twice, before going into service. The present system could not operate with this unit out of service for even a day without causing trouble. A large fire, with one reservoir dry, would mean serious trouble. We are forced therefore, to cut the sterilization period down to a few hours which kills most of the bacteria but doesn't exterminate the algae.

It is the writer's opinion that the entrance of men into a reservoir, if not followed by a long sterilization period, constitutes a potential hazard to the consumer. Should a carrier be among the workmen, it is conceivable that a few bacteria carried in by him, could escape the chlorine by hiding in cracks in the floors or walls of the reservoir. Later they could find their way into the system. Perhaps this could not happen and again perhaps we are just lucky.

The solution of these problems is the completion of the reservoir and pipe line commenced last Summer. The writer feels that every effort should be made to have these units ready for use before the dry weather of late Summer makes it necessary to supplement the old Wells with water from the new Bridge Street Well.

Finally it is highly desirable that a Chlorinator be installed at the Bridge Street Well house. Although the water from our other deep wells is nearly sterile as it comes from the ground, it is impossible to foresee all the contingencies that can arise in a water system. A city the size of Fredericton cannot afford to overlook any precautionary measure that could prevent a catastrophe.

Fredericton, N. B.,
February 4, 1958.

(Signed) E. W. Hagerman.

Following is a list showing date and place where samples were taken. Each sample was divided into 5 portions of 10 cc each. Each 10 cc portion was planted in Lactose Broth as primary media. Confirmatory media used was Brilliant Green Bile 2%. Nothing will be noted after the portion if results are negative but positive results will be written as 1 plus or 2 plus, etc., up to a possible of 5 plus.

January 3	Ashfield's Garage, Union Street
January 3	Tunis, A. - Hawthorne Terrace
January 9	127 Charlotte Street
January 19	Pumping Station
January 23	127 Charlotte Street
January 31	Union Motors
February 1	Pumping Station
February 8	127 Charlotte Street
February 14	Pumping Station
February 21	Pumping Station
March 3	127 Charlotte Street
March 7	Union Motors
March 14	Union Motors
March 21	127 Charlotte Street
March 28	Union Motors
April 1	Pumping Station
April 6	Union Motors
April 14	Pumping Station
April 21	R. Malloy, McKeen Street
May 6	U. N. B. Residence
May 6	G. R. Harvey, Gonnaught Street
May 13	R. A. Malloy, McKeen Street
May 25	Union Motors
June 1	Pumping Station
June 6	Union Motors
June 13	127 Charlotte Street
June 13	Union Motors
June 19	Union Motors
June 21	Pumping Station
July 3	Union Motors
July 6	Union Motors
July 10	Union Motors
July 23	Union Motors
August 2	People's Hardware
August 7	Pumping Station
August 13	Ashfield's Garage
August 28	Ashfield's Garage
September 3	Prov. of N. B. Yard, Killarney Road - 3 plus Chlorinating
September 4	Prov. of N. B. Yard, Killarney Road - 1 plus Chlorinating
September 7	Union Motors Chlorinating
September 12	Union Motors Chlorinating
September 15	Hughes Court, Hanwell Road Chlorinating
September 18	Prov. of N. B. Yard, Killarney Road
September 24	Killarney Well

October 2	Killarney Well		
October 7	127 Charlotte Street		
October 11	U. N. B. Engineering		
October 19	Killarney Reservoir		
October 25	127 Charlotte Street		
November 1	Union Motors		
November 11	127 Charlotte Street		
November 16	Union Motors		
November 19	Union Motors	1 plus	Chlorinating
November 22	Ashfield's Garage	1 plus	Chlorinating
November 26	Killarney Well		Chlorinating
November 26	North Devon Station		Chlorinating

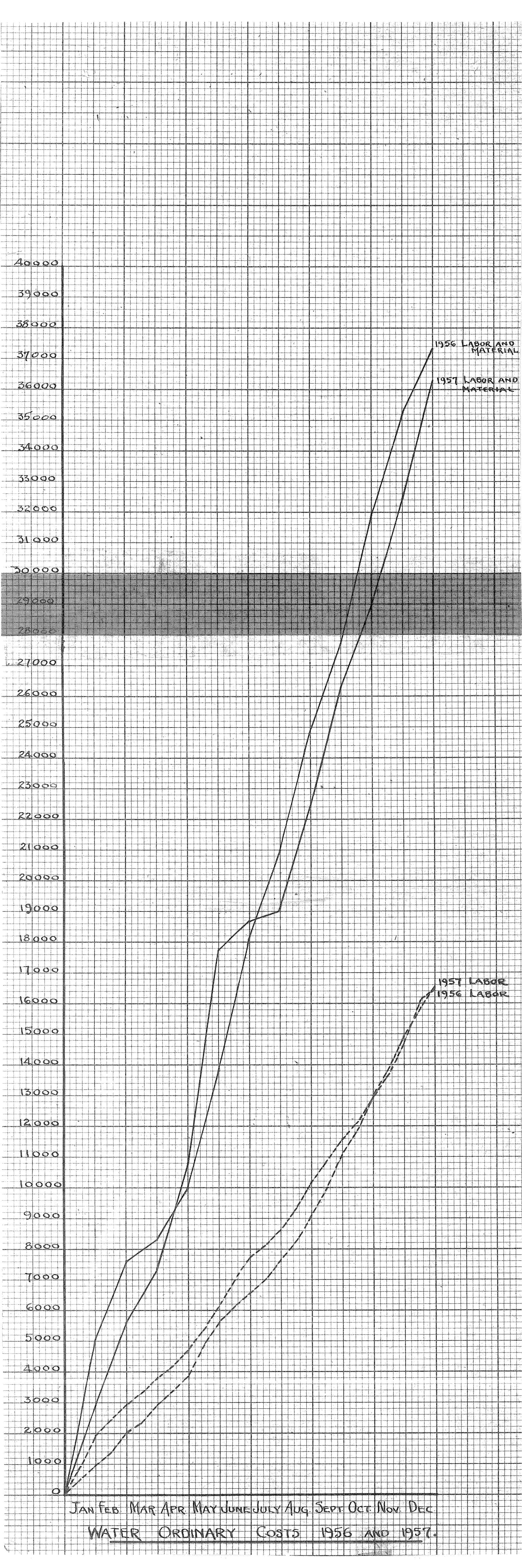
Ceased Chlorinating November 28th

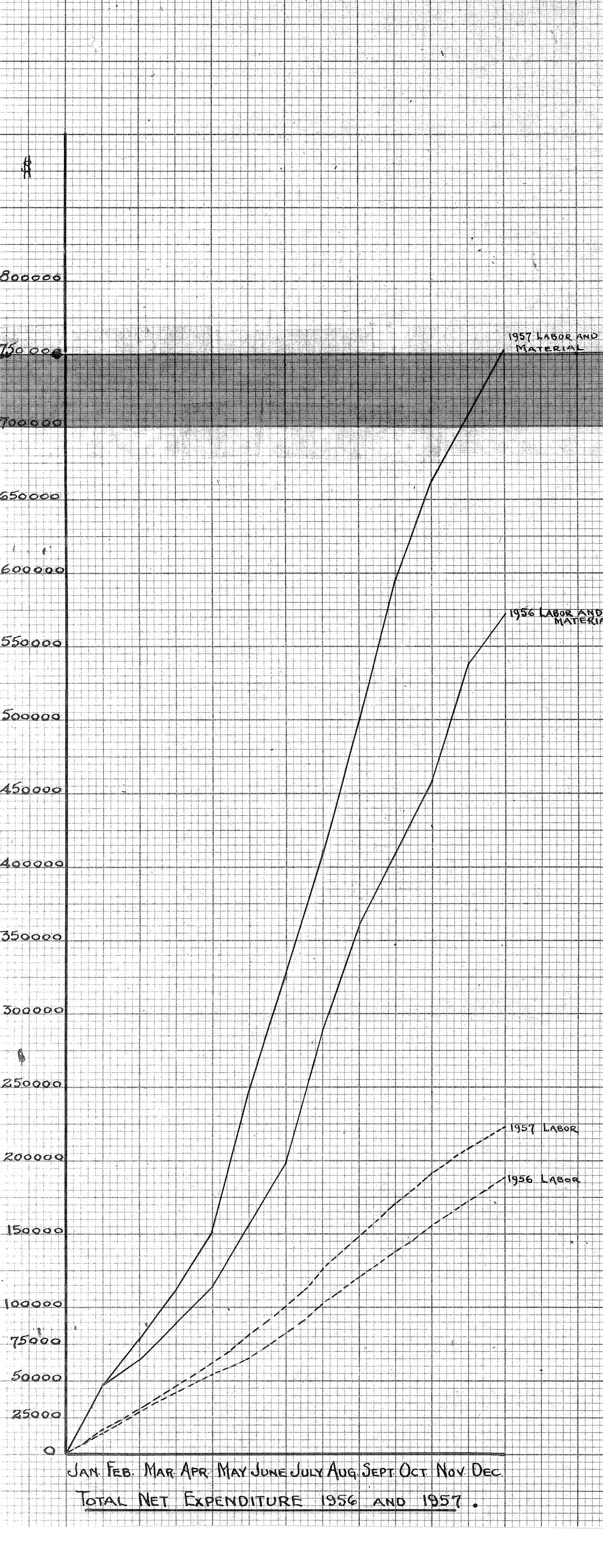
December 3	Union Motors
December 8	U. N. B. Engineering
December 21	People's Hardware
December 27	Wilmot Park Well

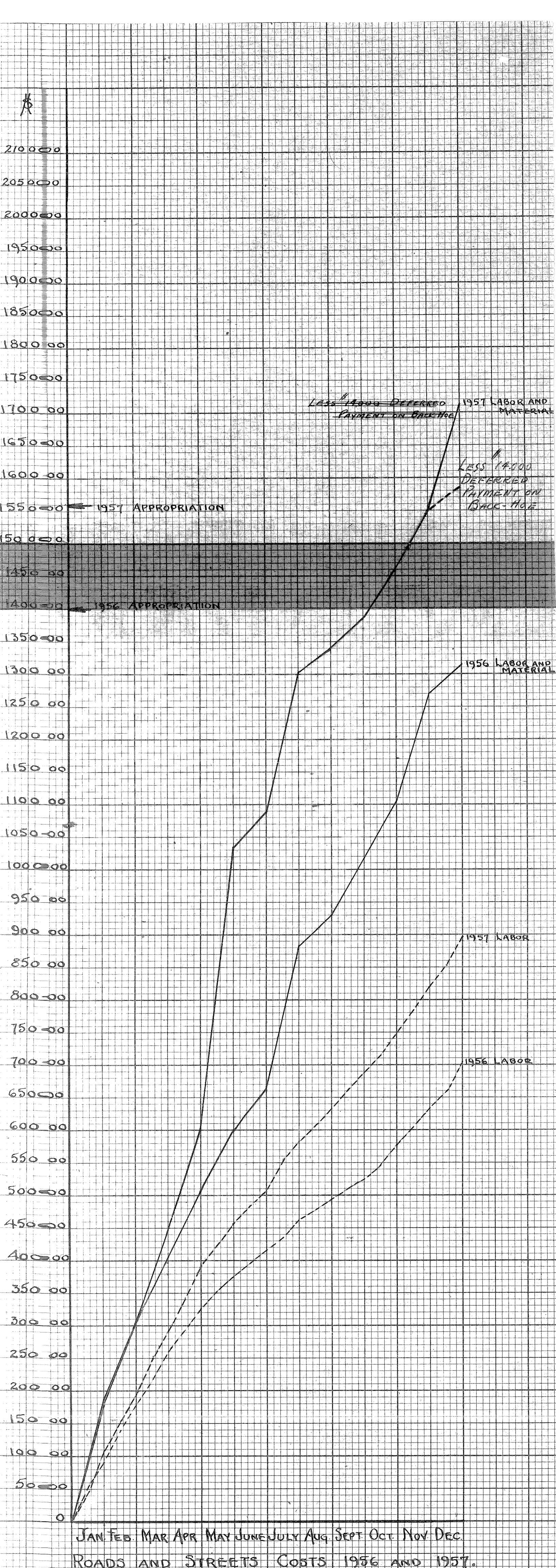
Following are pH values of Well and tap water taken at sampling taps at Pumping Station.

	Tap		<u>Well</u>
<u>Aerated only and Chlorinated</u>			
January	6.85		6.47
February	6.85		6.5
March	6.9		6.65
April	6.9		6.5
May	6.9		
June	6.9		
July	6.9		
Lime added from here			
August	7.2		6.57
September	7.2		
October	7.2		
November	7.4		6.6
December	7.35		

Hardness (EDTA) since lime added averages 70 ppm,
Alkalinity 57 ppm.









CONSTRUCTED DOAK ROAD
FROM SCHOOL HOUSE TO COLLEGE LINE ON FLANAGAN ROAD.

