

# ANNUAL REPORT OF THE ENGINEERING AND PUBLIC WORKS DEPARTMENT

## 1939



YEARLY REPORT OF

CITY ENGINEER

FREDERICTON, N. B.

1939

*Office*

I N D E X

YEARLY REPORT OF CITY ENGINEER

FREDERICTON, N. B.

Year 1939

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JANUARY 1, 1940.

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

Gentlemen:

I submit herewith this report which is a statement of the work done in the different City Departments under the direct supervision of the City Engineer, and covers the period of time from the first of December 1938 to the first of December 1939.

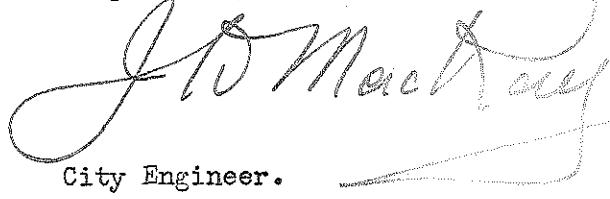
This report is written with the purpose of reporting to the Council on the costs of the various Departments for the year. It is also written with the idea of having on file an accurate record of the different activities and costs under these departments.

The various city activities which come under the supervision of the City Engineer are:

Roads and Streets, construction and maintenance.  
Public Works, construction and maintenance.  
Water System, operation, construction and maintenance.  
Domestic Sewerage System, operation, construction and maintenance.  
Surface Sewers, operation, construction and maintenance.  
Street Lights, operation, construction and maintenance.  
Shade Trees, planting, pruning, removal, etc.  
Other construction or maintenance activities such as repairs to City Hall or other City buildings, or any other work which the Council may from time to time put in the hands of the City Engineer.

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

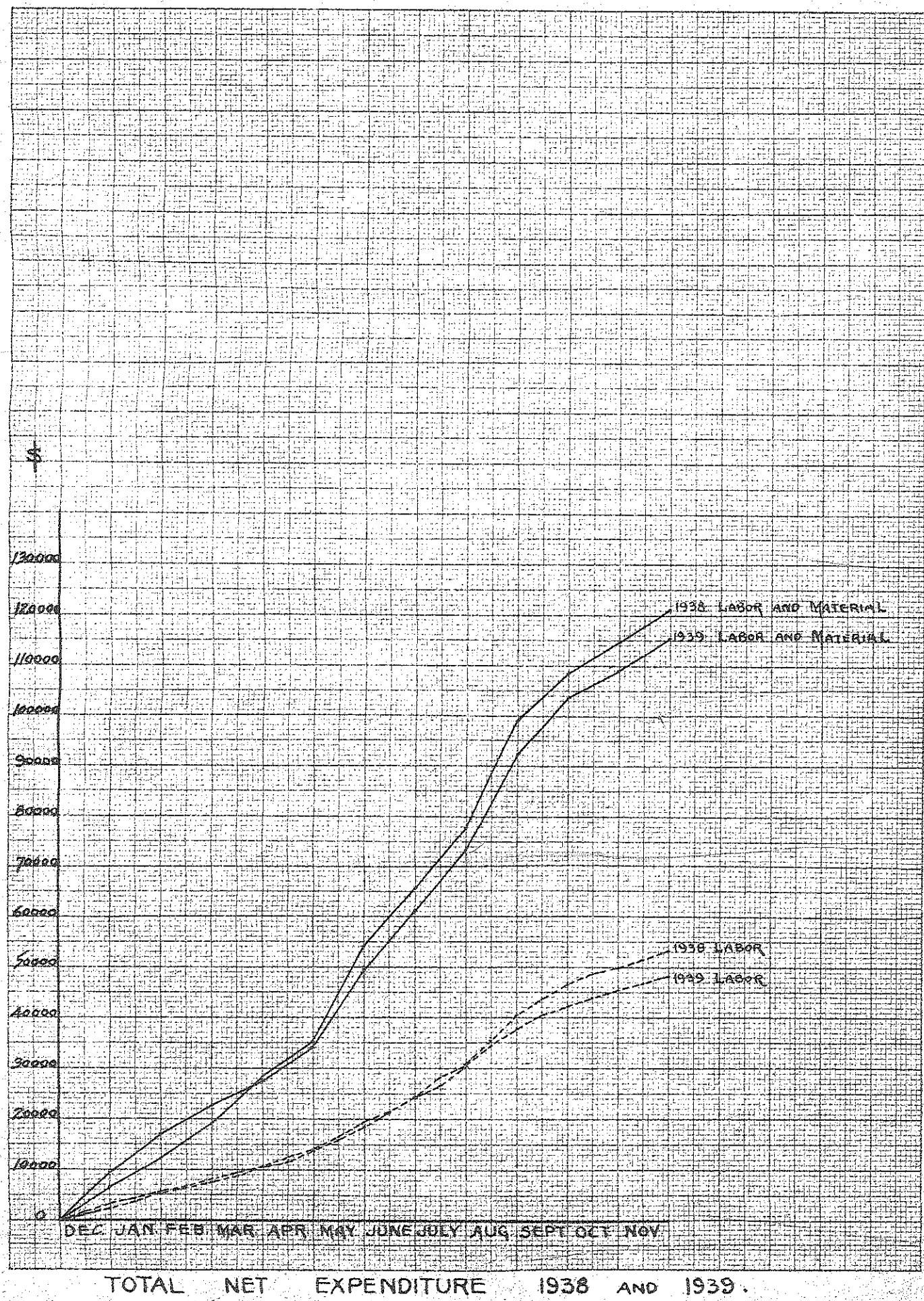
Respectfully submitted,

  
J. D. MacAulay  
City Engineer.

### TOTAL YEARLY EXPENDITURE

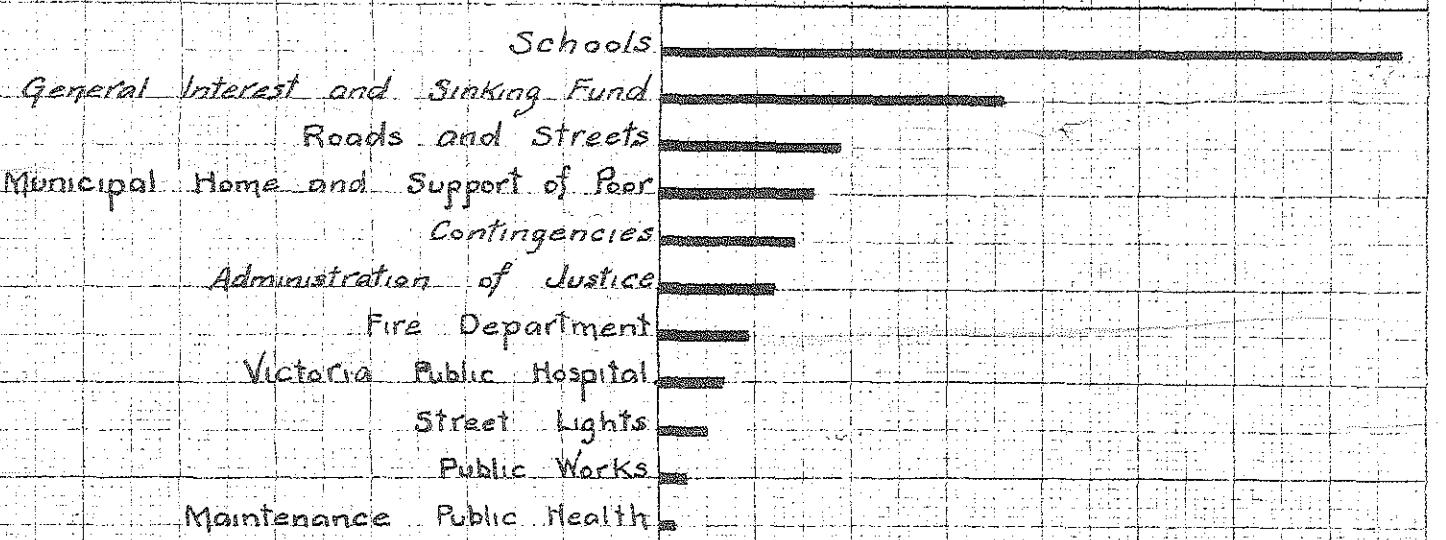
The total yearly net expenditure under the direct supervision of the City Engineer this year amounted to \$115,354.58. This expenditure will be taken up in detail under the different headings in this report.

A graphic comparison of expenditure for labour and material for the year 1938 and 1939, and a chart showing the distribution of the 1939 Fredericton Tax dollar are here shown:-



1939

THE FREDERICTON TAX DOLLAR in cents



0      10      20      30      40  
Cents

## ROADS AND STREETS

This year we had an appropriation for Roads and Streets of \$28,000 which is the largest appropriation since 1931, at which time we had \$31,000 for this Department. Notwithstanding the large appropriation we over-expended this year some \$2700. This is principally on account of the major repairs which had to be made to our pavements after the extremely hard winter and spring of 1938.

The City of Fredericton Roads and Streets system may be divided into two districts, namely, the Urban District and the Outlying or Rural District. The Urban District is bounded roughly as follows: on the North and East by the St. John River, and on the South and West by the line of Albert and Dundonald Streets.

The Outlying or Rural District would be the district within the city limits outside the above mentioned boundaries.

Altogether in Fredericton we have some  $44\frac{1}{2}$  miles of roads and streets and about 32 miles of sidewalk. This sidewalk of course all lies within the Urban district.

The roads and streets are divided between the two districts as follows:-

### Roads and Streets

	<u>Urban</u>	<u>Outlying</u>	<u>Total</u>
Paved	10.82	3.46	14.28
Gravel	<u>6.86</u>	<u>23.21</u>	<u>30.07</u>
Total	17.68	26.67	44.35

### Roads and Streets Expenditure 1939:-

Gross Expenditure.....	\$32,509.93
Credits.....	1,762.67
Net Expenditure.....	30,747.26
1939 Appropriation.....	28,000.00
Dr. Balance.....	\$ 2,747.26

The above credits are made up as follows:-

Received from other City Departments for work done and material sold by Roads And Streets Dept.....	\$1391.05
Work done for and material sold to private parties by Roads and Streets Dept.....	321.02
Gas Tax refund from Provincial Government.....	<u>50.60</u>
	\$1762.67

The Gross Expenditure of \$32,509.93 is divided as follows:-

Labour.....	\$16,681.88
Material charges and Workmen's Compensation Board.....	<u>15,828.05</u> \$32,509.93

The labour charge of \$16,681.88 is divided as follows:-

<u>Snowploughing sidewalks.....</u>	\$ 218.74
<u>Snow Control:- Shovelling and hauling snow, ploughing or scraping roads, cleaning gutters of ice and snow and any other means of snow control.....</u>	3,569.33
<u>Streets:-General work on 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.....</u>	818.07
<u>Surface Sewers:-Cleaning, flushing and repairing surface sewers and building new surface sewers within street limits.....</u>	240.64
<u>Sanding Walks:-Hauling, drying and storing sand in winter storage piles and spreading same or slippery walks.....</u>	484.82
<u>Yard:- Men working at blacksmith shop and repair work in City Yard, taking summer equipment out and storing winter equipment, etc.</u>	2067.65
<u>Street Sprinkling:-Water Carts.....</u>	502.15
<u>Stone Crushing:- Repairs to crusher and crushing stone.....</u>	245.19
<u>St. John Road:- (Not capital account). All work done River road from Alexandra Street to eastern city line other than work done by power maintainer.....</u>	23.05
<u>Doak and Wilsey Roads:- All work done on these roads other than work done by power maintainer.....</u>	126.78
<u>New Maryland Road:- From C. P. R. crossing to southern city line. All work done on this road other than that done by power maintainer.....</u>	195.40
<u>Outlying Roads:- Hanwell Road, Cross Roads lying between Brick Hill and College Hill Road and Forest Hill Road. All work done on these roads other than work done by power maintainer.....</u>	491.20
<u>Street Cleaning:- All cleaning and removal of dirt from street</u>	5024.94
<u>Tarvia Repairs:- Patching and repairing asphalt and tar pavements and sidewalks and applying seal coat of light tar or asphalt to pavements.....</u>	2059.88
<u>City Road Patrol:-.....</u>	486.73
<u>Quarry:-.....</u>	37.31
<u>Total.....</u>	\$16,681.88

The above items are made up entirely of labour costs and give a good idea of the amount and kind of work done by the Roads and Streets Department for this year.

Following is a table comparing labour expenditure in these items from 1934 to 1939.

TABLE COMPARING YEARLY COSTS IN ROADS AND STREETS  
LABOUR ITEMS

<u>Item</u>	<u>1934</u>	<u>1935</u>	<u>1936</u>	<u>1937</u>	<u>1938</u>	<u>1939</u>
Snowploughing side-						
walks	329.78	225.05	247.00	54.43	366.43	218.74
Snow Control	4,999.27	3,973.77	3,195.55	1,263.06	3,146.37	3,659.33
Streets	940.39	2,908.55	1,526.75	3,162.53	1,332.94	818.07
Surface Sewers	241.33	238.05	198.75	911.68	206.26	240.64
Sanding Walks	73.20	108.53	154.10	621.94	277.05	484.82
Yard	1,134.39	1,073.73	1,202.68	1,377.97	1,399.56	2,067.65
Gravel		55.91	58.99	41.62	54.07	
Street Sprinkling	813.20	817.63	815.10	772.93	418.70	502.15
Stone Crushing	65.66	3,550.57	2,990.43	1,926.04	61.92	245.19
St. John Road	240.25	497.56	425.21	81.73	34.07	23.05
Doak & Wilsey Road	99.90	296.30	239.45	417.07	2,282.07	126.78
New Maryland Road	69.87	168.84	98.21	157.35	76.41	195.40
Outlying Roads	172.12	142.15	594.51	651.36	212.64	491.20
Street Cleaning	2,409.02	3,095.83	2,662.17	3,522.89	4,546.64	5,024.94
Tarvia Repairs	782.82	488.61	738.07	931.35	678.43	2,059.88
City Road Patrol	715.92	632.88	602.45	780.16	507.82	486.73
Quarry	209.85	6,990.20	1,737.85	1,277.23		37.31
Relief			869.78			
Richardson Cons. CO.				109.14		
Total	13,296.97	25,264.16	18,357.05	18,060.48	15,601.78	16,681.88

These labour items may be better understood by the following explanations:

Snow Control:-

Snowploughing roads and streets.....	\$ 387.35
Shovelling and hauling snow.....	1001.28
Scarifying walks.....	18.15
Draining streets.....	381.25
Thawing catch basins.....	446.40
Snow fences.....	333.71
Picking ice and hauling from streets.....	788.34
Thawing culverts.....	91.85
General Expenses.....	201.00

Total.....\$3659.33

### SNOW FENCES

In the fall of 1939 we constructed some 4,845 feet of snow fence. We made this fence out of one-half inch snow fence lath purchased from the Fraser Companies and bound with four wired binds. The cost per foot of this fence as manufactured by the city crews was 7.8¢. I believe the price of this fence if we had purchased it would have been about 8 cents a foot f. o. b. Fredericton. This fence should do us for a number of years as it is easily put up and can be taken down in the spring and used again. Besides this snow fence made from pickets we set up about 1,000 feet of brush snow fence on the top of Maryland Hill near the Eatman farm.

#### Streets:-

Repairs.....	\$406.91
Street Signs, Painting and Erecting.....	103.35
Painting lines on streets.....	111.80
Painting Poles.....	42.20
Painting (Refuse Cans	
" (Benches	
" (Water Cart	7.60
Gravel on Streets.....	54.15
Calcium Chloride, Spreading.....	37.10
Cutting Grass on Streets.....	9.60
General Expense.....	<u>45.36</u>
Total.....	\$818.07

#### Yard:-

This winter we built in the City Yard a combined blacksmith shop, garage and store room. This building is 54' x 41'. It is of wooden construction with a steel roof and shingled sides. The upstairs is used as a store room, part of the ground floor is a blacksmith shop and work room, and the rest houses two trucks, the motor road patrol and one tractor. The building is heated by two stoves and cost \$1425.00; labour \$393.00; and material \$1032.00.

#### Stone Crushing:-

The labour item on the stone crushing of \$245.19 is the cost of labour and repairs for re-building the crushing plant. All other stone crushing costs were paid for under the Permanent Road Account.

#### Doak and Wilsey Roads:-

The labour on the Doak and Wilsey Road of \$126.78 was merely ordinary labour work on the surface of these roads, and the repairs to two culverts on the Wilsey Road.

#### Maryland Road:-

The Maryland Road had some \$195.40 spent on it in labour. This was only maintenance work and right-of-way skirting.

Outlying Roads:-

The labour expenditure of \$491.20 is made up as follows:-

Hanwell Road.....	\$ 80.45
Flanagan Road.....	63.00
Forest Hill Road.....	71.20
Poorhouse Hill Road.....	86.01
Golf Club Road.....	42.89
College Hill Road.....	91.52
Cross Roads.....	19.80
General Expenses.....	<u>27.33</u>
Total.....	\$491.20

Street Cleaning:-

Street cleaning with a labour cost of \$5024.94 shows an increase of about \$500 over last year.

This item has been increasing since 1936 in proportion to our increase in paved streets. As soon as a street is paved it is necessary to keep it brushed three or four times a week. This work is done in Fredericton by a crew of five men and a team which go over the city as often as they can concentrating on the parts of the city which become dirty the quickest. Besides this crew we have two men with push carts who each look after one-half of the Front Street section. This item also takes in the spring and fall cleaning and removal of leaves, etc.

Tarvia Repairs:-

The labour expenditure of \$2059.88 is divided as follows:-

Patching streets.....	\$1,013.58
Tarring streets .....	93.30
Patching walks.....	12.20
Rebuilding streets.....	828.92
General Expenses.....	<u>111.88</u>
Total.....	\$2,059.88

Last winter and spring we had a number of severe thaws and freeze-ups and a long drawn out spring. These conditions were very hard on our paved streets which had not been in a condition to take the wear as far as their surfaces went. After the spring wear and tear a number of them were in very bad condition. King Street had broken badly in places between Regent and Westmorland street, and Queen Street from Northumberland Street to King Street had been pretty well shaken up. Repairs were made on King Street by digging out the faulty portions and putting in a gravel base, and then repairing with heavy stone and penetrating with Tarvia X. Additional surface sewerage was also put in on King Street on the block between York and Westmorland street.

On Queen street the faulty portions were dug out, given a gravel base, and re-paved with large stone penetrated with Tarvia X. Then the whole block from King street to Northumberland street was re-surfaced with about two inches of finer stone penetrated with Tarvia X. Lately in the season during the months of July and August practically all the paved streets in the city were re-sealed by a surface treatment of R. C. 3 Asphalt and Colas.

The R. C. 3 Asphalt was used on the following streets:-

Queen street from Westmorland street to Carleton street,  
and from Regent street to C. N. R. subway.

Woodstock Road from the Hanwell Road to the hospital.

King street from Smythe street to Regent Street.

Brunswick street from the hospital to C. N. R. subway.

Waterloo Row from C. N. R. subway to Ketchum Bridge.

George street from St. John street west about one-half block.

Church street from Charlotte to Aberdeen street.

*W.M.S.*

The following streets were sealed with Colas:-

*(Report)* Queen street from King street to Northumberland street.

Charlotte street from Northumberland to Church street.

Church street from Charlotte to Queen.

George street from Smythe to 300 ft. below St. John street.

York street from King Street to the Valley Railroad tracks.

Northumberland street from Queen to Saunders street.

Westmorland street from Queen to Saunders street.

Regent street from King street to Brunswick street.

All the expenses of the above sealing work both labour and material were charged to and paid for by a Permanent Road Account.

The following table shows the bituminous material used in 1939. This table includes material used in Permanent Roads Account as well as in our ordinary Roads and Streets account.

	Heavy Tar or Asphalt Tarvia X	Light Tar or Asphalt	Road Oil Cut Back Asphalt	Asphalt Emulsion Colas/
Gals. in stock Spring 1939	400	0	600	0
Gals. purchases in 1939	33645	16130	2385	22280
Available for season 1939	34045	16130	2985	22280
Stock on hand fall of 1939	0	0	0	450
Used in season 1939	34045	16130	2985	21830

4,000 gallons Colas not paid for 1939 and bill is still outstanding at date of writing.

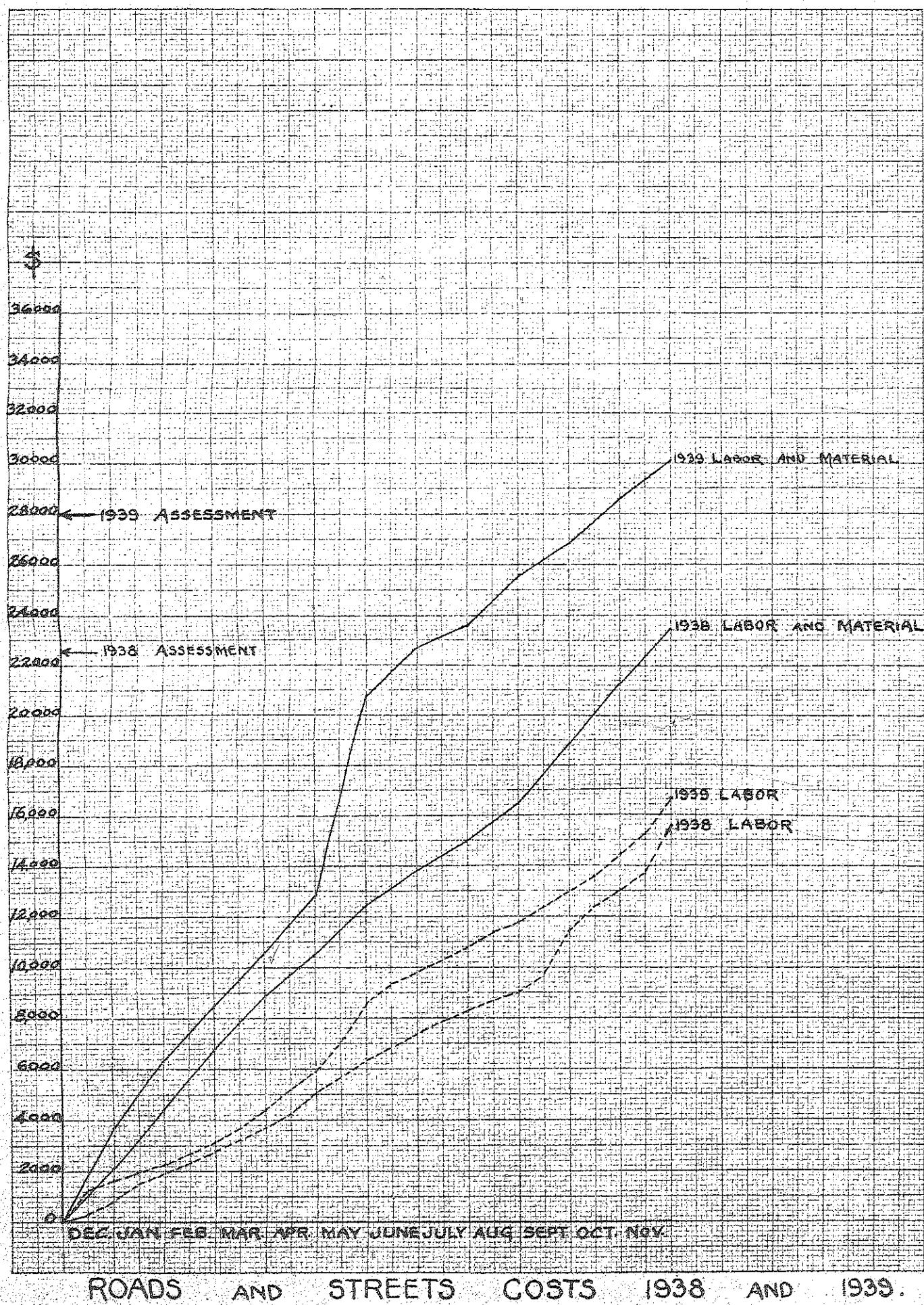
#### Gravel:-

This year  $3841\frac{1}{2}$  cu. yds. of gravel was purchased.  
 $3746\frac{1}{2}$  cu. yds. from Devon Lumber Company at 90¢ and 85¢ delivered on job, and 95 cu. yds. from D. Olts at 50¢ on pile opposite City Hotel, Queen street. We are now paying the Devon Lumber Company contract price of 85¢ per cu. yd. for sand and gravel delivered where and when required in the City of Fredericton.

TABLE SHOWING COMPARATIVE COSTS OF ROADS AND STREETS

Year	Expenditure for Labour	<u>YEARS 1927 to 1939:-</u>			Net Costs Labour and Materials.	Appropriation
		Gross Expenditure Labour and Materials	Credit			
1927	15,692.00				24,245.00	26,000.00
1928	17,122.45				26,058.70	26,000.00
1929	14,490.47				26,682.98	31,000.00
1930	16,553.53				34,556.33	32,500.00
1931	26,024.54	50,849.60	15,511.97	35,337.63	31,000.00	
1932	25,430.96	39,101.62	4,822.19	34,279.43	25,000.00	
1933	10,607.99	19,161.58	333.28	18,829.10	19,000.00	
1934	13,332.51	23,665.94	2,311.58	21,354.36	20,000.00	
1935	25,264.14	46,588.85	21,502.31	25,086.54	23,000.00	
1936	18,357.05	33,238.01	11,059.77	22,178.24	23,000.00	
1937	18,060.48	34,931.68	12,641.95	22,289.73	20,000.00	
1938	15,601.78	24,273.83	781.88	23,491.95	22,500.00	
1939	16,681.88	32,509.93	1,762.67	30,747.26	28,000.00	

The following plate shows graphic comparison of Roads and Streets costs for years 1938 and 1939.



PERMANENT ROAD ACCOUNT

Gross Expenditure.....	\$26,885.77
Credits.....	4,163.58
Net Expenditure.....	\$22,722.19

The Credit of \$354.72 was on account of work done for private parties by the Permanent Road Department and charged to and paid for by these parties.

The Credit of \$3808.86 is accounted for by work done and charged to other city departments. These two credit items make up the total credit of \$4163.68.

The Labour cost of the Permanent Road Department amounted to \$7657.16 and is made up as follows:-

Curbing.....	\$2,145.93
Crusher.....	1,401.75
Seal coating, Paved streets.....	901.42
Surveying.....	13.50
Paving.....	2,941.61
Surface Sewer, Winslow Street.....	106.40
Surface Sewer, Aberdeen Street.....	82.60
Surface Sewer, Woodstock Road.....	23.35
Surface Sewer, Union Street.....	40.60
Total.....	\$7,657.16

On our Permanent account this year the following work was completed:-

Bituminous Pavement:-

<u>Location</u>	<u>Lineal Feet</u>	<u>Square Yds.</u>
		<u>Bituminous Pavement Only</u>
<i>Sub Way</i>		
University Ave., Shore to Alexandra Street	2607	8110
Church Street, George to Brunswick street		228
Church street to Charlotte		163
Charlotte, Church to C. N. R. Crossing	795	9296

The cost of the 795 sq. yds. shown here as laid on Charlotte street was paid for by C. N. R. Crossing Account and credited to Permanent Road Account and appears in above credits.

The above listed total of 9,296 sq. yds. consisted of bituminous penetrated Tarvia pavement which was laid by the city crews. Besides this pavement the Canada Construction Company put down at a contract price some 1,905 sq. yds. of their black base premixed pavement. This was laid in the following locations:-

<u>Location</u>	<u>Lineal Feet</u>	<u>Square Yds.</u>
Westmorland Street, Saunders to Aberdeen	343	1029
York Street, Valley Track to C. P. R. track	292	876 1905

University Avenue Pavement:-

The pavement laid this year on University Avenue was of the more expensive type of penetration Tarvia. This was laid between concrete curbs and gutters.

The foundation on parts of this street was found to be unstable on account of clay, and the entire road was excavated to permit a 6 inch crushed stone base. This base course was laid in two layers rolled and filled with crusher dust and cinders. The base was then primed with about  $\frac{1}{4}$  gallons per yd. of Cut Back Asphalt primer manufactured by the Imperial Oil Company.

We purchased this primer directly from the Provincial Government through the Canada Construction Company, and applied most of it with a city watering cart.

Wearing Course:-

A three inch wearing course was laid on this prepared rock base. We used a coarse aggregate for this wearing course averaging about a two inch stone. This was penetrated with a gallon and a half of Tarvia X.

We then applied three-quarter stone which was rolled and broomed to fill surface voids. The pavement was sealed with one-half gallon per yard of Tarvia X. Later in the season we gave this entire piece of pavement a seal coating with one-quarter gallon per sq. yd. of Colas.

This should be a rugged pavement and should stand up under heavy traffic. While it does not have the smooth surface of a premixed black base or sheet Asphalt it still gives a good riding and practically skid proof surface.

Pavement on Westmorland and York Street:-

Some 1,905 yards of pavement was laid at these two locations by the Canada Construction Company. They laid their regular type premixed pavement with gravel aggregate. This is the same type as they were laying on the Provincial Government road between Devon and Keswick and the Barker's Point Road. On Westmorland street a 4 inch course of this pavement was laid without any sub-base other than grading to the natural gravel which was very good at this location.

*Note - Contractor claims to have laid 5" thick.*

This natural gravel was primed with Cut Back Asphalt before the pavement was laid.

On York street the block between the C. N. R. and the C. P. R. tracks was re-shaped with the same premixed material. There was formerly a heavy crown on this piece of road. In the new construction the old road was left as a base and re-shaped with the new paving material. The finished job left this paving material with about 1 inch thickness in the middle of the road and tapering off to some 4 inches at each curb. *Total Cost \$1266.50*

*Asphalt aggregate mixed in place for Ton = \$3.25*

Trap Rock:-

In the spring of 1938 we had in the stone yard 7,179 tons of trap rock. Two thousand tons of this were crushed and graded. In May, 74 tons of uncrushed rock was hauled to the city stone yard by LeBaron Grass for which we paid him 90¢ a ton. We would therefore have for our summer operation 7,253 tons of trap rock. Two thousand tons of which were already crushed. The crushing of this 2,000 tons and the quarrying and hauling of all but the 74 tons hauled in May were paid for in our 1938 costs.

During the year we used about 167 tons of crushed rock in cement walks. This rock was paid for by Cement Walks and credited to Permanent Road Account.

We probably used about 33 tons of crushed rock in our ordinary roads and streets construction which was paid for by our Permanent Road Account. We used therefore 7,053 tons of crushed rock this season in our penetration pavement and curb and gutter construction.

In November 1939, 80 tons of trap rock were hauled in by the city truck. This was paid for by the Roads and Streets Department, and is the finish of the rock cost in 1939. However, in December, 1939, 234 tons were hauled in from city quarry by city trucks. This amount will appear in the costs of 1940. These two small operations in November and December leaves us with 314 tons of uncrushed trap rock in the city yard at the time of writing.

Following is a map of the city showing the streets paved this year marked in red and those paved previously marked in blue.

- CITY ENGINEER'S OFFICE -

FREDERICKTON N.B.

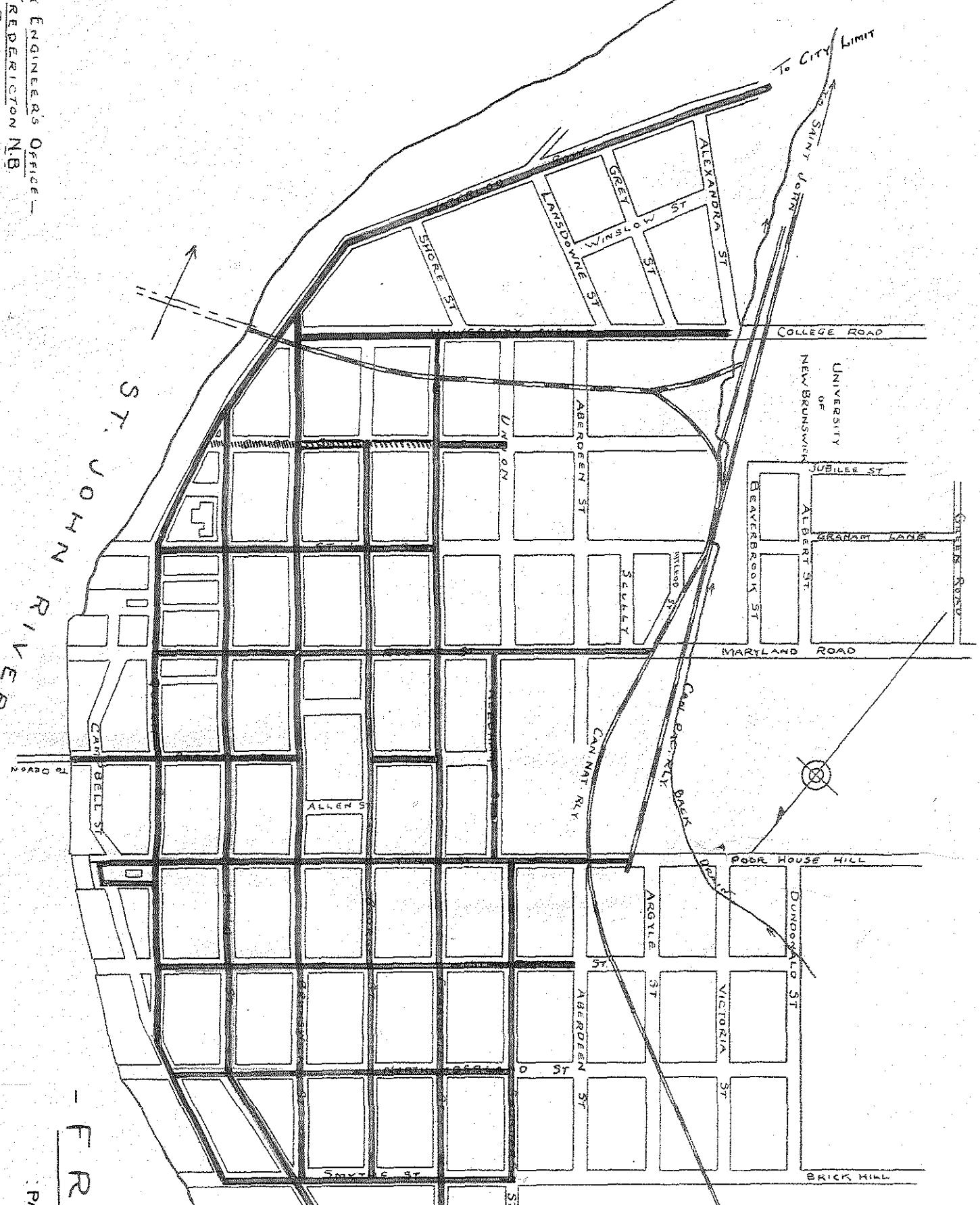
DEC. 1939.

Scale - 1/4 inch equals 800 ft

- F R E D E R I C T O N -

- OF -

- C I T Y -



Surface Sewers:-

The following surface sewers were laid by the Permanent Road Account in 1939:

On Winslow Street a surface sewer was laid from a blind catch basin near the residence of Delmas Olts, and running to Alexandra Street and along Alexandra Street to a catch basin near the residence of Professor E. O. Turner. This sewer was laid with 10" size Terra Cotta pipe and was 315' on Alexandra street and 155' on Winslow street.

On Aberdeen street between York and Westmorland street an old 15 inch concrete sewer was dug up and relaid for a distance of some 355 feet.

On Woodstock Road a Terra Cotta sewer and rock drain was laid on the south side of the road from the end of the culvert near the Chapman property for a distance of 275 feet in a westerly direction to the residence of Hughie Andrews. This sewer was laid in the road ditch and should improve the drainage in this section.

On Union Street a 10" Terra Cotta sewer was laid from near Dunn's wood yard along the north side of the road to the corner of Church street a distance of 206 feet.

On Union Street, west side between Aberdeen street and C. P. R. tracks 240 feet of 10" Terra Cotta sewer was laid.

Concrete Curb and Gutter:-

At the following locations concrete curb and gutter was laid in 1939. This construction was all paid for by Permanent Road Account except that the curbing for the C. N. R. crossing on George and Charlotte streets was later charged to the C. N. R. Crossing Account and credited out of the Permanent Road Account.

STREET	LOCATION	SIDE	LINEAL FEET OF CURBING
University Avenue	Shore to Alexandra	West	1594
University Avenue	Shore to Alexandra	East	1663
Church	George to Brunswick	East	377
Church	George to Brunswick	West	358
Church	Charlotte to George	East	355
Aberdeen	York to Westmorland	North	627
Westmorland	Saunders to Aberdeen	East	349
Westmorland	Saunders to Aberdeen	West	343
Aberdeen	Westmorland to Northumberland	North	614
Aberdeen	Westmorland to Northumberland	South	619
Northumberland	Saunders to Aberdeen	West	363
Northumberland	Saunders to Aberdeen	East	343
Aberdeen	Northumberland to Smythe	North	659
Aberdeen	Northumberland to Smythe	South	659
Northumberland	Aberdeen to Argyle	West	363
Northumberland	Aberdeen to Argyle	East	346
George	Church to University Ave.	North	555
George	Church to University Ave.	South	556
#York	Aberdeen to Can. Pac. Ry.	West	292
#York	Aberdeen to Can. Pac. Ry.	East	150
	Total		11,185

Total brought forward (Page 13)	11,185
Curbing laid on George Street for C. N. R. Crossing	672
Curbing laid on Charlotte Street for C. N. R. Crossing	<u>392</u>
Grand Total	12,249

Curbing-----12.249 Feet or 2.32 Miles

#Curb Renewed      Their location had been previously curbed but the curb and gutter was in poor condition and was not at the proper elevation, so that the previous construction was disregarded and a new curb and gutter constructed.

#### ROYAL VISIT

On June 13, their Majesties King George and Queen Elizabeth visited the City of Fredericton. The city went to a good deal of trouble and expense to properly decorate the city and receive their Majesties.

All the streets on which their Majesties drove were decorated by the city. Bleachers were built along the "Green" and in front of the Parliament Buildings large enough to hold some 9,000 school children, and the children from the surrounding country as well as the city children were given places in these bleachers.

The bleachers were constructed by ~~construct~~ after tenders had been called. J. Stanley <sup>SPB</sup> being the successful tender. He built these bleachers according to a plan provided by the City Engineer and made a very satisfactory job. The total construction and removal of bleachers running about 30 cents per seat.

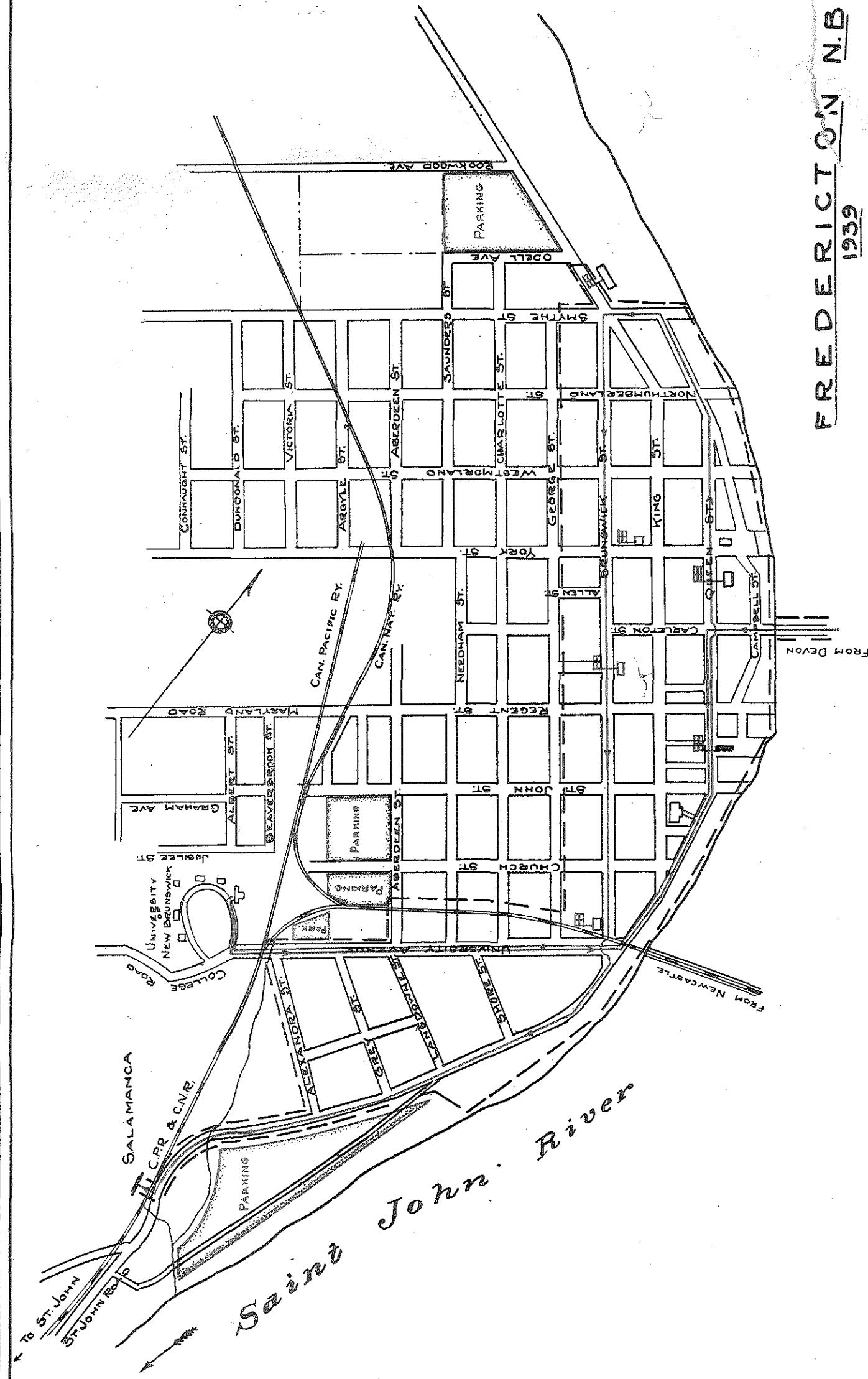
The decorations used on the streets were mostly made by city employees during the preceding winter and were assembled and erected by the city employees on the days preceding their Majesties visit. All streets travelled by Their Majesties were decorated. A system of shields placed on 12' poles and 20' decorated standards was used. The City Hall and the north end of the Fredericton, Devon Highway Bridge were also decorated by city employees. Mr. Percy Woodley of Saint John was employed by the city to assist in preparing the decorations. Mr. Woodley supplied the general idea for decorations, and also instructed our city workmen in the best way to make these decorations up. He also supplied most of the flags used after having submitted ~~to~~ tender for flags to the City Council.

The entire cost to the city including decorations, etc., was about \$11,000. The city received from the Provincial Government \$4,793.64 as assistance.

I am enclosing a handbill put out by the City of Fredericton showing the route taken by their Majesties and the program for the day.

**ROYAL VISIT - FREDEKIM V.**

JUNE 13th, 1939



**Route of Royal Procession shown by red line with arrow. Medical First Aid Stations shown on map by Red Cross Flag. Area from which Vehicles are excluded surrounded by black dotted line. Free parking area outlined in red.**

**MAP INSTRUCTIONS**  
Scale of Map—1 inch = 900 feet.

**PROGRAMME OF ROYAL PROCESSION, TIME, ETC.**

12.15 p. m.—The Royal Procession will stop alongside a Special Train which will be stationed at South Devon Station. Their Majesties will board the Train for a few minutes rest.

12.40 p. m.—The Royal Party will arrive in Fredericton. Royal Artillery Salute (104th Field Battery, R. C. A.—Major W. F. Blair).

12.45 p. m.—The Royal Party will arrive at the Provincial Legislative Buildings. The Prime Minister will present His Honour The Lieutenant-Governor of New Brunswick, The Honourable Murray MacLaren; The Premier of the Province, The Honourable A. A. Dysart; His Worship the Mayor of Fredericton, C. Hedley Forbes, Esq.; and Mrs. Forbes, and the District Officer Commanding, Brigadier L. F. Page, D.S.O. ● His Majesty will inspect the Guards of Honour, the Canadian Legion, B.E. S. L., C. I. Dougherty in command, and the University of New Brunswick Officers Training Corps—Lieutenant F. A. Brennan in command. ● Their Majesties will be conducted to the Legislative Chamber by the Honourable Mr. Dysart. The Premier will read an Address of Welcome and His Worship the Mayor will present a Civic Address. The Premier will present a number of officials including the Members of the Legislature and their wives; and the Mayor of Fredericton will present the Members of the City Council and their wives. The Royal Party will then drive to the Beaverbrook Residence at the University of New Brunswick.

1.15 p. m.—Their Majesties will be entertained at Luncheon by the Lieutenant-Governor and the Government of the Province of New Brunswick.

2.15 p. m.—The Royal Party will proceed on a drive through the City, out University Avenue to Queen, up Smythe to Brunswick, down Brunswick to Waterloo Row to Salamanca.

2.35 p. m.—The Royal Party will arrive at the Railway Station. Royal Artillery Salute (104th Field Battery, R. C. A., Major W. F. Blair) 2.40 p. m.—The Special Train provided for the use of The Royal Party between Fredericton and Saint John will leave.

2.40 p. m.—Daylight Display of Fireworks.

10.00 p. m.—Gigantic Display of Fireworks.

**INSTRUCTIONS TO CAR DRIVERS**

Vehicles will not be allowed after 9.00 a. m. to enter or remain on the streets in the portions of the City enclosed by the heavy dotted line. Cars arriving in the City after 9.00 a. m. will be directed to supervised Parking Places by traffic officers. Vehicles will not be allowed to use the Highway Bridge between Fredericton and Devon from 9.00 a. m. to 3.30 p. m.

**INSTRUCTIONS TO THE PEDESTRIANS**

Pedestrians will be required to keep off the road and behind the curb on those streets along which the Royal Procession will pass. Guards will be stationed at eight foot intervals along the curbs on the streets which the Royal Procession uses. It is the duty of the guards to keep the Pedestrians off the roadway. These guards are volunteering their services and have a long period of duty and spectators are requested to co-operate by standing in an orderly manner in places reserved for them.

Bridge will be closed to pedestrians from 11.00 a. m. to 1.30 p. m.

The Bridge will be entirely closed for sight-seeing purposes. Beaverbrook Hall and adjacent grounds are prohibited to the general public; due to congestion at that point; the need for free movement of the Royal Party, and the unsuitability of the road.

Be satisfied with seeing Their Majesties once. Do not try to go to another location to see them a second time. This causes congestion and is not fair to those who have been waiting.

Do not throw refuse of any kind into the street. A clean street is absolutely essential. An untidy one would be a disgrace.

Residents of the City are requested to leave their cars at home.

Gigantic display of Fire Works will take place on the flats—so called —in the eastern end of the City at 10.00 p. m.

C. N. R. CROSSING ACCOUNT

When the Canadian National Railways constructed their new Railway bridge in 1938, they raised the grades on their tracks at the George and Charlotte street crossings.

It was the obligation of the C. N. R. to put these streets in condition satisfactory to the city and to satisfy legal damage claims on the adjoining property.

The C. N. R. did do some street work on these grade changes and in fact practically completed the necessary fills at these locations.

A difference of opinion arose between the city and the railway as to the type of construction necessary to make these street crossings satisfactory. The city offered to do all the remaining street work at a cost of \$6,000 in a manner satisfactory to the city. The C. N. R. accepted this offer and the work was taken over and completed by the city.

At the George Street crossing after the fill had been brought up to the requirements the sides were Rip Rapped and a concrete curb and gutter run on both sides on top of the fill. At the foot of the Rip Rap concrete gutters were run joining the road gutters at the foot of the fill. Concrete driveways were put in to all adjoining property owners to their satisfaction. The grades of the sidewalks approaching the crossing were raised so as to cut two steps from the steps which lead the sidewalks over the fill.

On Charlotte Street it took considerable material to complete the fill, but no stone Rip Rap was necessary. Concrete curbs and gutters were laid over the fill in line with the street curbs. Concrete sidewalks were graded up to go over the fill without steps. Driveways to adjacent property owners as well as driveways to the railway property were graded and concreted where necessary. Concrete steps and approaches to the adjoining houses were re-made and relined to the satisfaction of the property owners.

The street over the fill on Charlotte Street was paved with a penetration Tarvia pavement.

The above mentioned work was done to the road crossings at these two locations to the satisfaction of the city at a total cost of \$4,494.43. This cost does not include any plant rental or overhead charges.

## PUBLIC WORKS

Gross Expenditure.....	\$4616.53
Credits.....	255.10
Net Expenditure.....	4361.43
1939 Appropriation.....	4000.00
Dr. Balance.....	361.43

The credits of \$255.10 are made up of \$150.10 charged to private persons for work done by or material sold to them from the Public Works Department, and of \$105.00 received as rental for our Tree Sprayer from the Federal Government.

This Tree Sprayer was rented to the Federal Government for 7 days at a rental of \$15.00 per day.

The Gross Expenditure of \$4616.53 is made up as follows:-

Labour.....	\$3937.07
Material and Workmen's	
Compensation Charges.....	<u>679.46</u> \$4616.53

The above labour item is divided as follows:-

Dump.....	\$1215.00
Back Drain.....	385.45
Trees.....	369.15
Unforeseen Account.....	<u>1967.47</u> \$3937.07

The labour cost charged to Dump is for the wages of a dump tender every week day throughout the year and having a night caretaker kept on the dump during the summer season. It also covers all extra labour required at the dump.

This year at one time we had to send an extra crew to the dump to straighten out a lot of heavy material which had been deposited on the dump after a fire in the city.

### Back Drain:-

About \$180.00 was spent in labour on the back drain removing ice and snow during last winter. In August the drain was given a thorough cleaning out. All weeds and other deposits were removed and the drain was made as serviceable as it was possible to make it.

In November the drain was again cleaned out to remove some heavy sand deposits which had been left there by recent storms.

There are times during the year that, even with the most careful supervision, this back drain cannot be made efficient enough to handle the water which may come in to it. Under certain winter conditions this back drain is full of ice and it is impossible, with a reasonable expenditure, to keep a large enough channel open in the drain. Should conditions of this kind exist at the time of heavy rains serious flooding will take place. This flooding might seriously effect that

(Continued)

built up portion of the city south of the Valley track and west of York street excepting of course those districts built on the higher elevation on the side of the hill.

The railway yards might also become badly flooded as well as some of the built up city districts on McLeod and Scully streets.

I believe this flood menace must have serious consideration, and that action should be taken by the city in co-operation with the railroads to remedy this situation.

I have in my office a survey of a proposed remedy. This proposal is, that a ditch be dug catching the present source of the back drain where it crosses, about one-half way up poorhouse hill and carrying it up river, along the slope of the hill, and through the O'Dell property to empty into Phyllis Creek near Ryans brick yard. My preliminary estimate of the construction not including purchase of right-of-way is \$13,500.00

Trees:-

Labour on trees this year some \$369.00 was considerably lower than last year. However, the necessary pruning and removal of bad trees was carried on, but it was not necessary to do anything extensive such as spraying work to control the Elm Avis.

The areas which were sprayed last year were found to be practically uninjected. We had the sprayer out about one day going over areas of the city which had not been sprayed last year but which showed slightly the affects of this parasite.

Unforeseen Account:-

The labour cost is divided as follows:-

Christmas Tree.....	\$ 18.60
Painting Signs.....	23.20
Hauling Pulp Wood cut on Quarry Lot.....	7.40
River Roads.....	22.20
Greens, Cutting and Raking.....	1,127.84
Graveyard (Old Burial Ground).....	55.24
#Hydro.....	17.20
Wharf.....	.95
#Canadian Legion Cutting Grass.....	29.45
#Stewart Neill.....	12.35
Cutting Bushes on River Bank.....	228.00
University of New Brunswick.....	20.00
Spraying Trees.....	16.00
Playground, (Queens Square).....	25.59
Race Track, (Trotting Park).....	16.10
Band Stand on Green.....	9.80
Y. M. C. A.....	4.40
#Surveying, Exhibition Grounds.....	34.05
#Drafting Plan of Exhibition Ground and Bldgs....	18.25
Surveying for New Back Drain.....	73.80
Soldiers Recreation Room.....	3.20
#Hartt Shoe Co.....	1.20
Cleaning refuse from Exhibition Ground.....	26.15
Miscellaneous.....	79.40
General Expense.....	97.10 \$1967.47

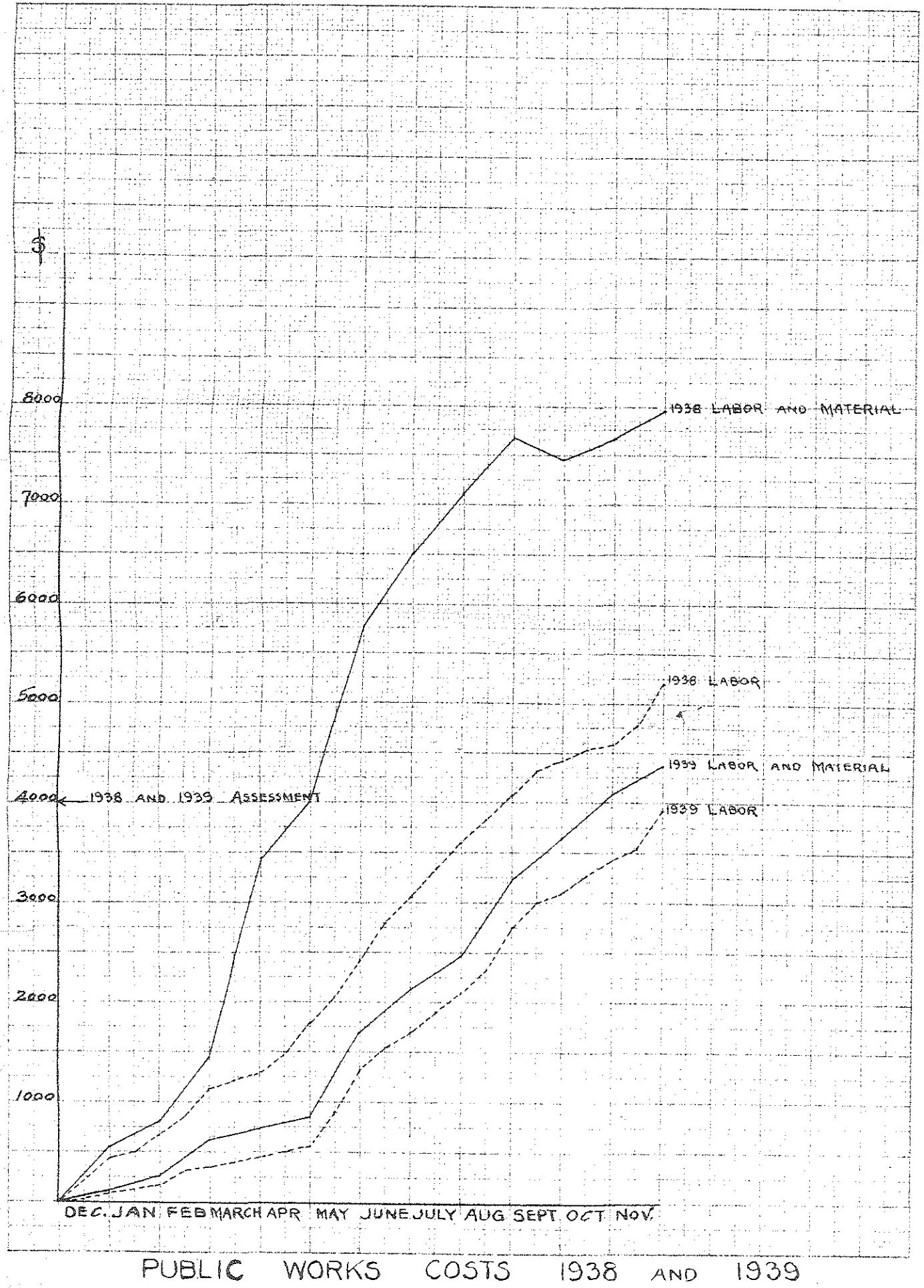
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#These items though appearing in city costs have been charged to the parties for whom the work was done.

TABLE SHOWING COMPARATIVE YEARLY COSTS OF PUBLIC WORKS

Year	Expenditure for Labour	Gross Expenditure Labour and Materials	Credits	Net Costs Labour and Material	Appro- priation
1927	1,204.90			2,520.00	4,000.00
1928	2,470.39			3,156.87	3,000.00
1929	1,685.59	2,606.00		2,626.00	5,000.00
1930	2,729.82	3,379.09	237.90	3,159.19	5,000.00
1931	1,574.17	1,982.91	61.95	1,920.96	2,500.00
1932	3,797.65	4,992.98	322.35	4,670.63	2,500.00
1933	3,948.39	5,394.06	474.89	4,919.17	4,500.00
1934	3,734.85	4,929.00	1,302.36	3,626.64	4,000.00
1935	2,906.24	4,425.84	2,776.96	1,648.88	3,000.00
1936	2,867.38	4,211.33	2.73	4,208.60	3,000.00
1937	3,673.48	4,283.52	123.45	4,160.07	5,000.00
1938	5,135.07	8,631.67	664.00	7,967.67	4,000.00
1939	3,937.07	4,616.53	255.10	4,361.43	4,000.00

The following plate shows graphically a comparison of 1938 and 1939 Public Works costs.



### CHILDRENS HOME

During 1938 the Children's Home was re-roofed and the outside of entire building was given two coats of paint. All the storm windows were repaired, glazed and painted. Upstairs third floor, three rooms and a hall were whitewashed, papered and painted, and two new bedroom doors were purchased and hung. Upstairs second floor, all woodwork painted and ceilings whitened and front hall papered. Downstairs on the main floor all wood-work painted and ceiling whitened. The parlor, hall and one bedroom were papered. The total cost of the above mentioned work which was under the supervision of the City Engineer's Department was \$1,073.94. This cost has been charged to Contingent Account.

### CITY HALL

During July and August of this year a new roof was put on the City Hall. The roof had formerly been a flat asphalt built up roof on top, with slate shingles on the slopes.

Many of these slate shingles had become loosened and were unsafe. The slate was all removed and replaced by an Asphalt shingle. The built up roof on top was renewed. All loose woodwork and corners were repaired and replaced in good condition. The total cost of this job was \$2,205.56.

### BATHING BEACH

This year as usual we maintained a bathing beach at the end of Smythe Street near the water works under the care and supervision of Mr. Charles Williams.

The beach was opened from June 2nd, 1939 to September 13th, 1939 at the total cost to the city of \$282.82 made up of \$257.59 for wages and \$25.23 material cost.

### MUNICIPAL HOME

Under this heading appears on my books the sum of \$1,566.31. This is made up entirely of labour costs.

For this labour cost some 350 cords of wood were cut on college land and hauled to the city yard. Five hundred forty-five (545) loads of wood were hauled from the city yard and delivered to needy persons about the city on orders received from the Poor Commissioner. Repairs were made to the Municipal home buildings.

(Continued)

In cutting wood on college land relief labour was used as well as some of our city paid labour. This operation was really a job to keep the relief men busy. These men received assistance from the city and were required by the city to work each order out at 25 cents an hour before they could get another order.

Professor Gibson, Dean of University of New Brunswick Forestry School, allotted the city a portion of the University woods which he wished to have trimmed out and cleaned up in a certain manner as a Forestry experiment.

This work was carried on by the city relief crews under Professor Gibson's direction. The city taking any wood which they could salvage from the job and as stated above this wood amounted to 350 cords.

The actual paid labour on this job ran about \$2.15 per cord. The other portion of the cost being supplied by the relief men.

By this scheme the city salvaged about \$2.00 a cord on this 350 cords of wood, and the college had a Forestry experiment carried on at not cost to themselves.

The kitchen and dining room of the Municipal Home were this year cleaned up and painted, and some of the ceilings and upstairs and downstairs were whitened. The roof on the kitchen which was of practically flat construction had been leaking badly and it was decided to build an upstairs verandah over the roof. This verandah was constructed by the city crews with a total cost of labour and material at \$252.83.

#### STREET LIGHTS

The city street lighting system is this year practically the same as that of 1938. It is fully described in my report of 1938. However, there are some small changes in the number of lamps on the different series circuits, and I am therefore inserting a list of different circuits showing the lamps in place.

The series circuits are made up as follows:-  
Lower Front Circuit:-

17-600 C. P. lamps at .372 K. W. demand.....	6.324 K. W.
42-250 C. P. lamps at .155 K. W. demand.....	6.510 K. W.
9-100 C. P. lamps at .0716 K. W. demand.....	<u>.644</u> K. W. 13.478

Lower Rear Circuit:-

96-250 C. P. lamps at .155 K. W. demand.....	14.880 K. W.
31-100 C. P. lamps at .0716 K. W. demand.....	<u>2.219</u> K. W. 17.099

(Continued)

Upper Front Circuit:-

1-600 C. P. lamps at .372 K. W. demand.....	.372 K. W.
72-250 C. P. lamps at .155 K. W. demand.....	<u>11.160</u> K. W. 11.532

Upper Rear Circuit:-

73-250 C. P. lamps at .155 K. W. demand.....	<u>11.315</u> K. W. <u>11.315</u>
Total K. W. demand.....	53.424

It will be noticed that the demand on the <sup>Upper</sup> ~~Front~~ Rear Circuit has been lowered from 17.165 K. W. to 11.375 K. W. This is accounted for by the fact that the Fredericton Exhibitions Buildings were burned down on November 29, 1939, causing the removal of lamps from the street lighting <sup>front</sup> ~~front~~ Rear Circuit which had been supplying lighting in the Exhibition Buildings.

There were a few small new installations this year as follows:-

On York Street in front of Shoe factory.....1-250 C. P. lamp  
On Lansdowne Street between Waterloo Row  
and Winslow Street.....1-250 C. P. lamp  
In the east end of Beaverbrook Street.....2-250 C. P. lamps  
At the corner of Carleton & King Street -  
1-250 C. P. lamp was removed and changed to....1-600 C. P. lamp  
with rippled glass fitting.

The street lighting cost for the year 1939 are as follows:-

Gross Expenditure.....	\$8,645.97
1939 Appropriation.....	<u>7,500.00</u>
Dr. Balance.....	\$1,145.97

This Gross Expenditure is made up as follows:-

Lamps for replacement:-

12-600 C. P. lamps at \$1.69.....	20.28
360-250 C. P. lamps at $97\frac{1}{2}$ ¢.....	351.00
60-100 C. P. lamps at $52\frac{1}{2}$ ¢.....	31.50
13-150 Watt lamps used in subway... ..	4.95
Current on subway lighting and series fixtures from Nov. 27/38 to Nov. 27/39.....	\$6,131.01
226094 K. W. H.	
Charges on multiple fixtures installed on Queen street at the contract price of \$75.00 a light per year.....	1,050.00
Maintenance, labour as per contract price.....	330.96
Material purchased for new installations and maintenance of lamp fixtures (including only such articles as lamp standards, lamp brackets, heads, sockets, shades, etc).....	395.40
Material used and extra labour supplied by Maritime Electric Co. in line maintenance extension.....	146.32
Miscellaneous charges.....	4.55
Ground rental.....	170.00
Telephone in transformer room.....	10.00
	8,645.97

The total per capita charge for street lighting for 1939, assuming  
population of 11,000 persons

$\frac{8645.97}{11000} = 78.6\frac{1}{2}$

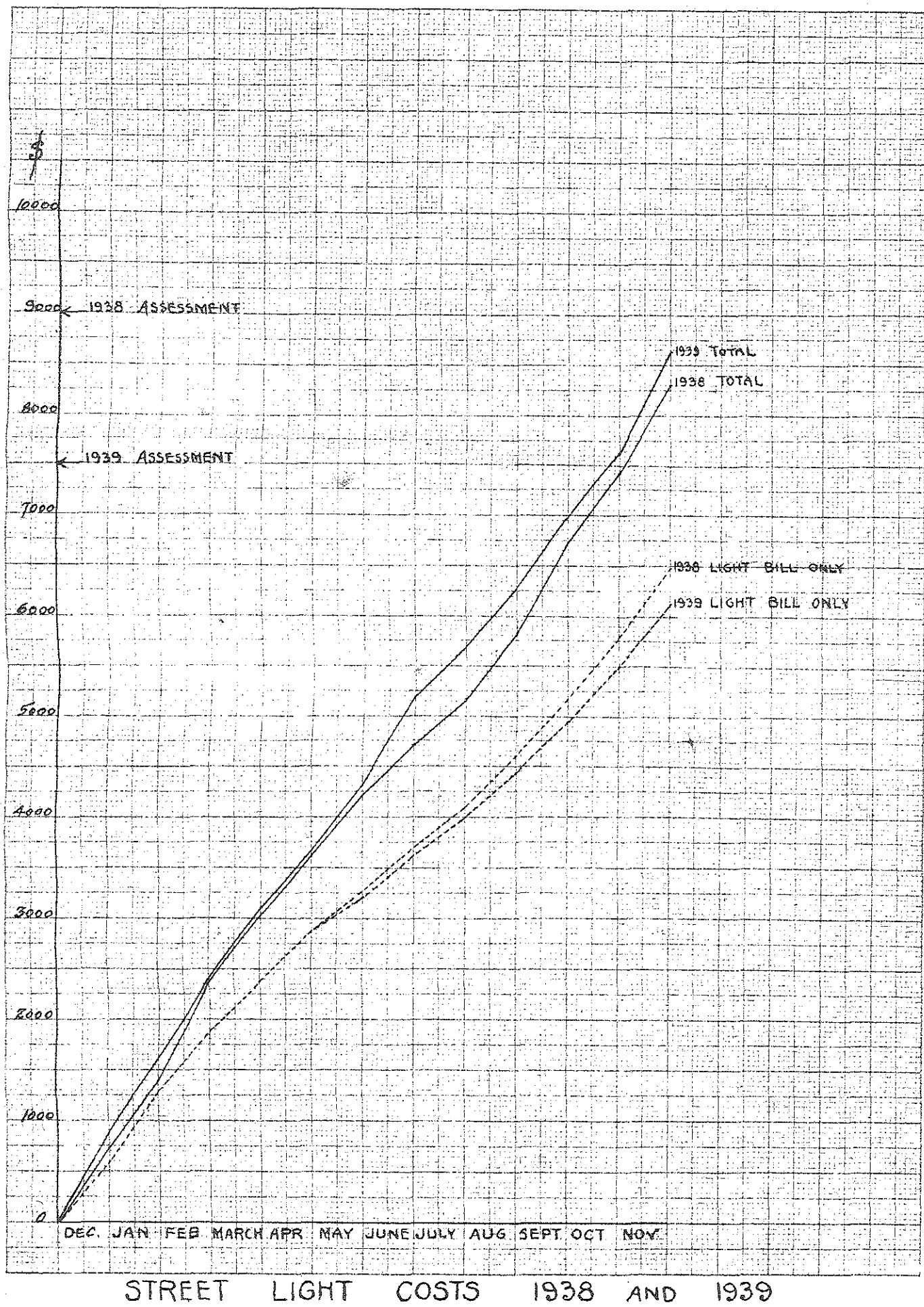
TABLE SHOWING CURRENT CHARGES FOR 1939  
ON SERIES LIGHTING

Date of Bill	K. W. H.	Demand in K. W.	Average No. of burning hours per night	Bill per month
Nov. 28/38				
to Dec. 31/38	24,327	59	14 $\frac{5}{4}$	621.03
Dec. 31/38				
to Jan. 31/39	26,349	59	14 $\frac{1}{2}$	661.94
Jan. 31/39				
to Feb. 28/39	22,976	58	13	592.30
Feb. 28/39				
to March 29/39	18,100	58	11 $\frac{1}{4}$	500.01
March 29/39				
to April 29/39	17,362	55	9 $\frac{1}{2}$	472.73
April 29/39				
to May 31/39	13,105	58	8 $\frac{1}{2}$	394.00
May 31/39				
to June 29/39	13,343	57.3	7 $\frac{1}{4}$	396.39
June 29/39				
to July 29/39	11,929	57	7 $\frac{1}{2}$	367.54
July 29/39				
to Aug. 29/39	15,183	58	8 $\frac{5}{8}$	434.56
Aug. 29/39				
to Sept. 30/39	18,800	61.5	10 $\frac{1}{2}$	514.57
Sept. 30/39				
to Oct. 31/39	20,088	62.3	12	541.93
Oct. 31/39				
to Nov. 28/39	24,530	63.9	13 $\frac{1}{2}$	634.01
	226,094			\$6,131.01

TABLE SHOWING COMPARATIVE YEARLY COSTS IN STREET LIGHTING

Year	Total Yearly Cost	Yearly Appropriation
1927	\$8,088.41	\$8,000.00
1928	7,323.41	7,000.00
1929	7,434.72	7,000.00
1930	7,115.40	7,000.00
1931	6,672.23	10,000.00
1932	6,532.51	6,000.00
1933	6,425.87	6,000.00
1934	6,065.28	6,000.00
1935	6,632.33	6,000.00
1936	6,957.72	7,000.00
1937	9,688.62	7,500.00
1938	8,314.06	9,000.00
1939	8,645.97	7,500.00

A graphic comparison of 1938 and 1939 street light expenditure and power cost is shown on the following plate; the curve for power cost includes the bill for the series lighting and the lighting in the subway only, and does not include the bill for the multiple fixtures installed on Front Street and owned by the Maritime Electric Company.



CEMENT WALKS

Gross Expenditure.....\$3,565.56

For the above gross expenditure the following 5 ft. sidewalks were laid at the following locations:-

<u>Street</u>	<u>Location</u>	<u>Side</u>	<u>Lin. Ft.</u>
Union	St. John to Church	North	138 $\frac{1}{2}$
Carleton	Brunswick to George (through old Graveyard)		350
Woodstock Road	O'Dell Ave. to Phyllis Creek	North	4496 $\frac{1}{2}$
	Total		4985 Ft.

Besides the above listed walks a walk to the front door of the St. Dunstan's school containing some 2200 sq. ft. and the walk from George Street to the York Street school containing some 476 sq. ft. were put in, the city doing this construction and making no charges to the schools.

A number of private walks, steps, driveways, etc., were put in by private citizens. These were charged to the parties for whom the work was done at a price of 20¢ a sq. ft.

The sidewalk laid on Woodstock Road was laid in front of the Federal Government property from the Nurses Home to the Children's Home for a distance of some 2,023 feet. For doing this sidewalk construction the city received from the Federal Government the sum of \$1.06 per ft.

Plans have been made up and are on file in the city offices showing this sidewalk work and bills have been made up and sent out to the property owners for their part of the sidewalk construction and for the private construction done for them on their properties.

Following is a map showing the sidewalks laid this year in red and those laid in previous years in blue.

CITY ENGINEER'S OFFICE  
FREDERICTON NB

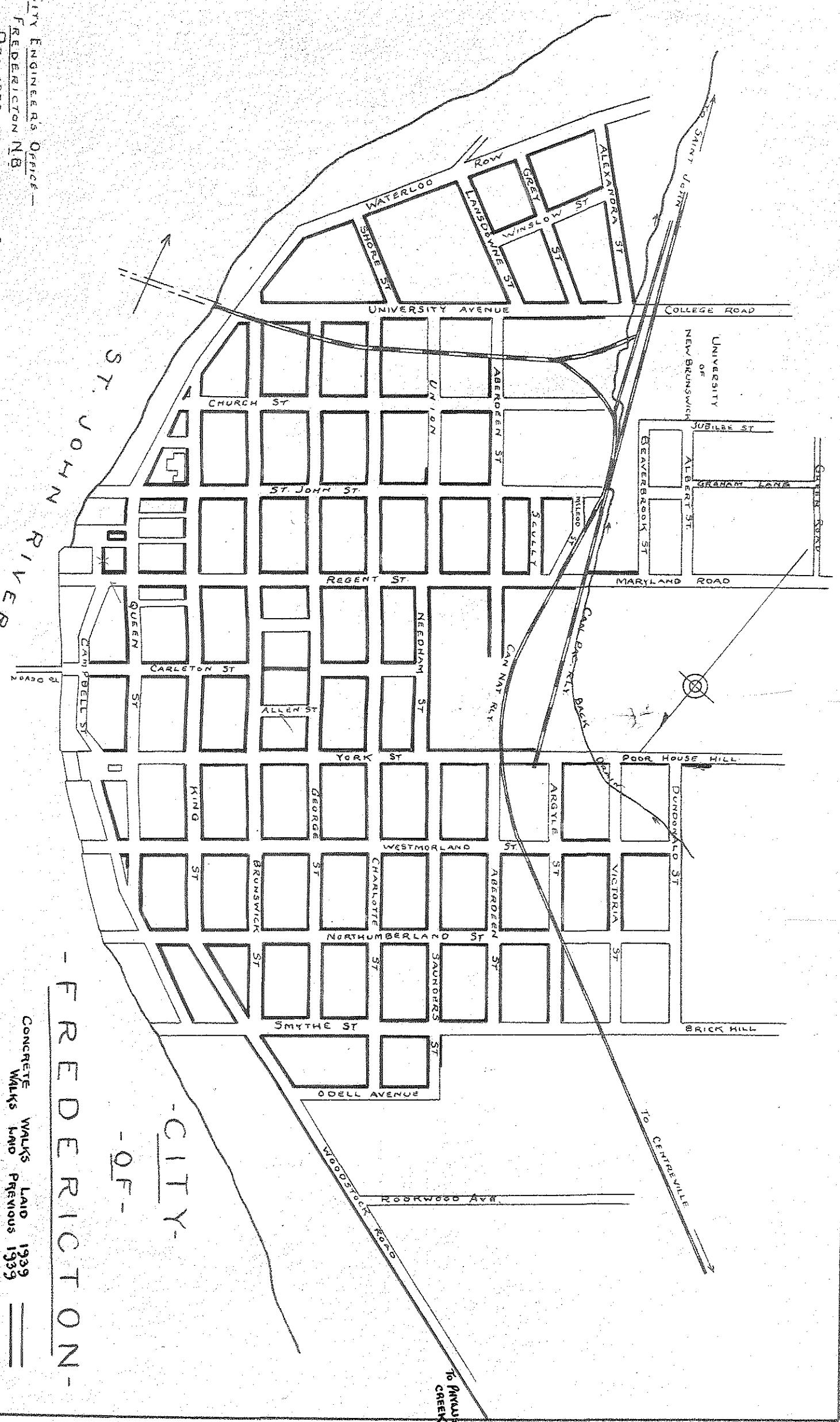
Scale - 1 inch equals 800 ft

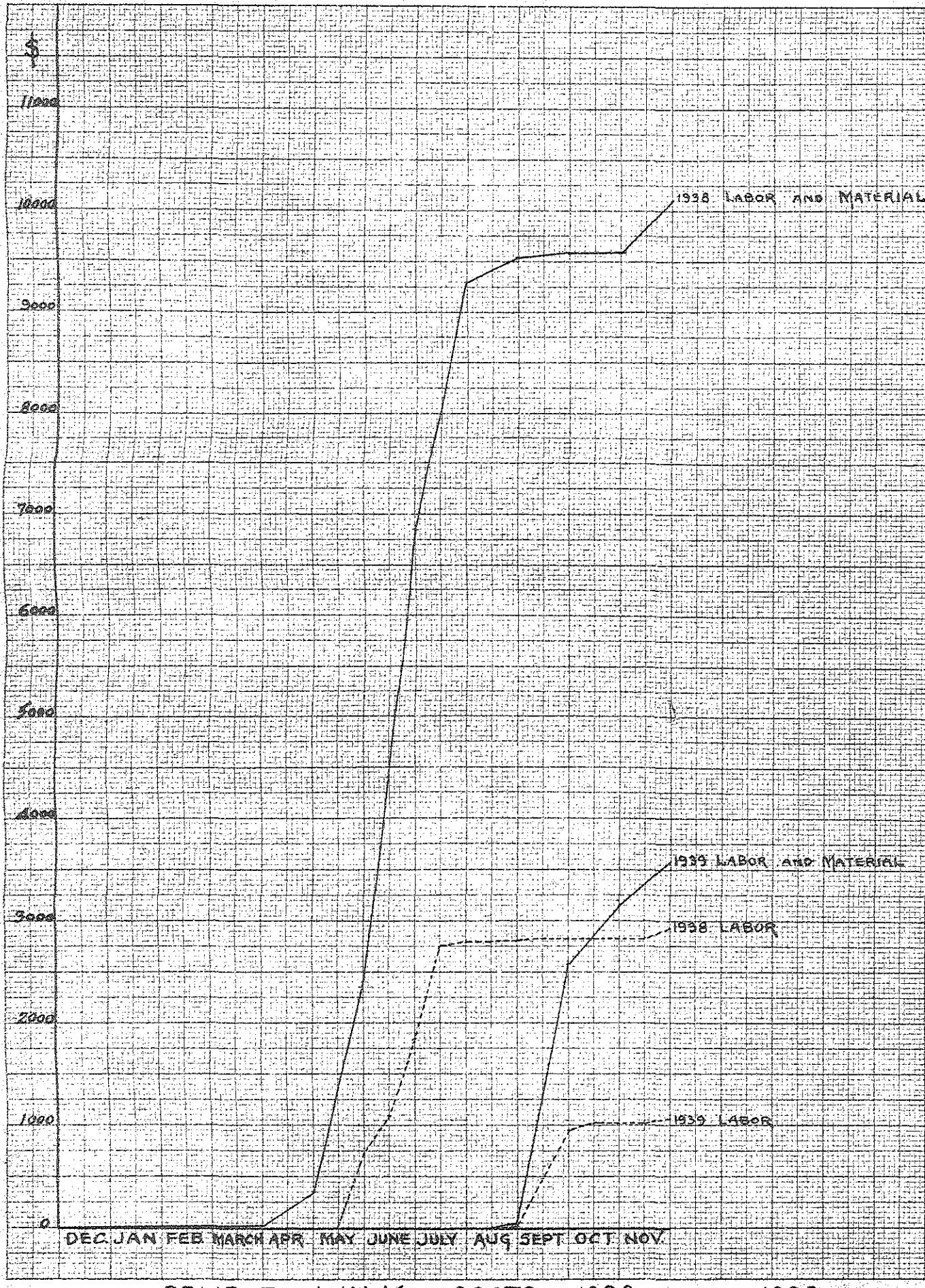
NOAO 01

CONCRETE WALKS LAID PREVIOUS 1939  
WALKS LAID 1939

# FREDERICTON

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CEMENT WALK COSTS 1938 AND 1939

### SEWERAGE DOMESTIC

Gross Expenditure.....	\$3,706.92
Credits.....	<u>1,385.53</u>
Net Expenditure.....	<u>\$2,321.39</u>

This credit of \$1,385.53 is made up as follows:-

840 ft. of 10 inch Terra Cotta pipe sold by Sewerage Domestic to Sewerage Capital Account for surface sewer....\$ 493.66 work done on the Domestic sewer for private parties This work consists of all sewerage installations and sewerage maintenance other than that done on the principal sewer main which serves the street..... 891.87

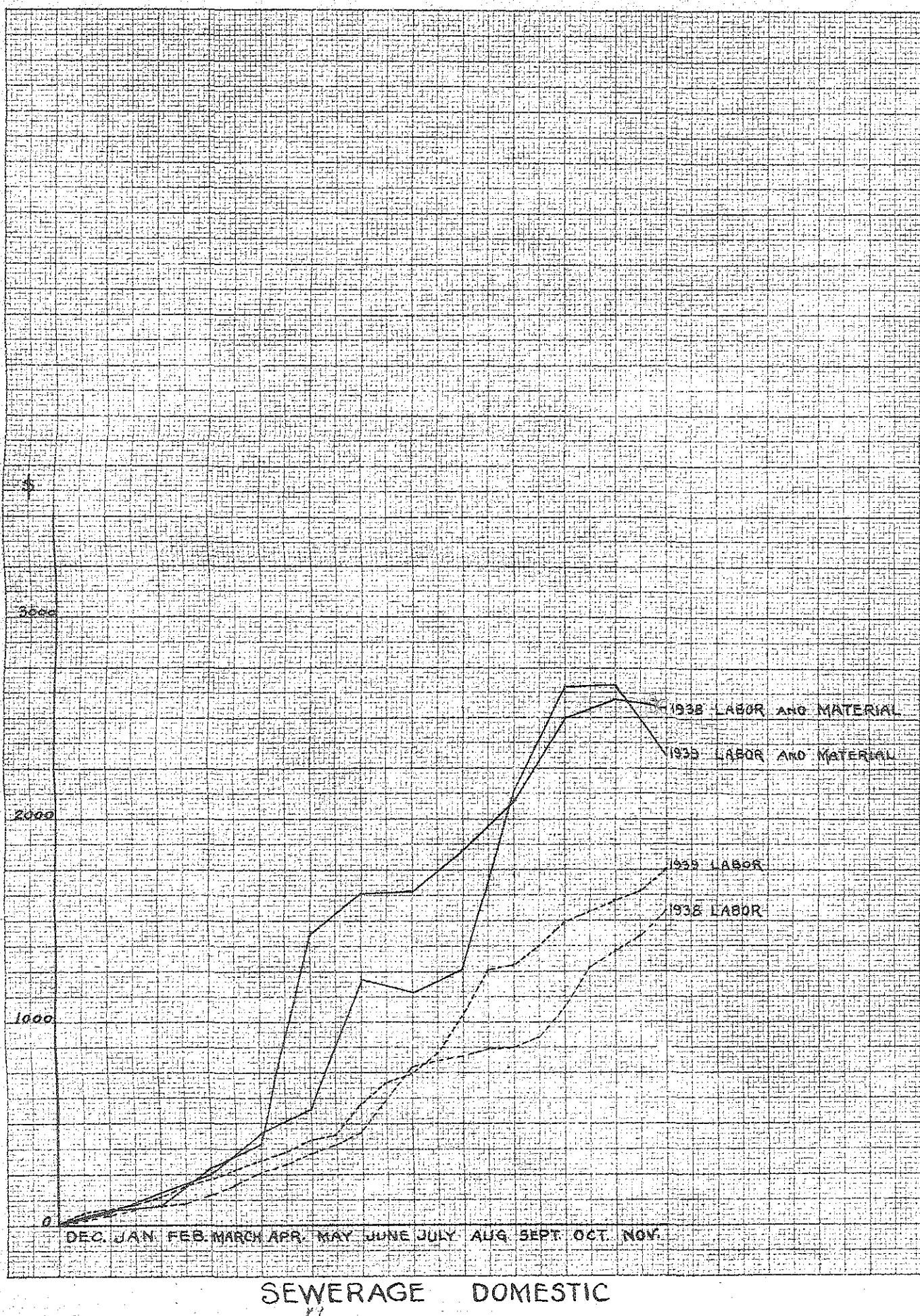
\$1,385.53

One new extension was made this year. This was on Rockwood Avenue where a 10 inch Terra Cotta main was laid joining up with the Woodstock road. This main was 456 ft. long. A 10 inch main was used in this location rather than an 8 inch to allow for future extensions in this district. Total costs of installation was \$531.13. Up to the present time 2 customers have been connected to the main.

The entire domestic sewerage system was flushed out twice during the year. Once from May 29 to June 8 at a labour cost of \$111.94 and once from September 15 to the 23 at a labour cost of \$93.20.

Number of customers connected to the City Sewerage system this year..... 23  
Old sewerage dug out and relaid..... 6

A graphic comparison for domestic sewerage costs for 1938 and 1939 is shown on the following plate:-



## WATER

The expenditure in this department is divided into two headings, namely, "Water Ordinary" and "Water Pumping Station".

### Water Ordinary:-

This account takes in all expenditures for water outside the pumping station and pumping station grounds. The expenditure under this heading is made up as follows:-

Gross Expenditure.....	\$7,449.85
Credits.....	570.44
Net Expenditure.....	<u>\$6,879.41</u>

The credits are made up of work done for and materials sold to private parties when installing a water service over grounds other than city property or when the material is to be used on parts of systems which do not belong to the city.

There also appears in these costs the sum of \$117.88 which is made up of monies returned to the Water Department from the other City Departments and consists of Workmen's Compensation charges which were paid by the "Water Ordinary" Account which should have been paid for by other city departments.

The Gross Expenditure is made up as follows:-

City Payroll for hydrants.....	\$ 542.81
City Payroll for meters.....	1,171.86
City Payroll for water ordinary.....	2,486.57
Total Payrolls.....	<u>4,201.24</u>
Material and other charges.....	3,248.61
Gross Expenditure.....	<u>7,449.85</u>

### Hydrants:-

We have in the city 148 hydrants. Our above costs show us an average cost per hydrant for labour only of \$3.67.

These hydrants consist of five 8 inch hydrants, thirty-nine 6 inch hydrants, and one hundred and four 4 inch hydrants.

### Meters:-

Of all our water services in the city 534 are charged under flat rate and 1,097 are on meter, giving us altogether 1,631 services.

The labour cost this year per meter for installing, reading, repairing, etc., is \$1.07.

Fifty-seven meters were found stopped this year and had to be repaired.

(Continued)

All meters are read four times a year but bills are only sent out twice a year. We have about 25 customers whose meters are read once a month although they also are billed only twice a year. These are customers who ordinarily have large consumptions and where a stopped meter or a meter turned over without being noticed would mean considerable loss of revenue to the city.

Meters in service 1938.....	1,093
Services metered for first time in 1939.....	14
Total.....	<u>1,107</u>
Meters taken off service in 1939.....	10

Services on meter Nov. 1939.....1,097

Meters in store room January 1, 1940:-

5/8 meters repaired and fit for service.....	6
5/8 meters that can be repaired and made fit for service.....	0
New 5/8 meters.....	6
3/4 meters fit for service.....	0
1 inch meters that can be repaired and made fit for service.....	0
1 inch meters fit for service.....	1
1½ inch meters fit for service.....	1
Compound meters fit but not in service.....	1
Compound meters not fit but which can be repaired...	1

The city purchased 25 new meters this year.

25 - 5/8" x 3/4" Trident cold water meters, with connections, straight reading,	
Imperial Gallons, each \$12.26	\$306.50
Tax 8%	<u>24.52</u>
Meter Nos. 5,625,586 - 590	
5,625,498 - 517	\$331.02

#### DISTRIBUTION SYSTEM

New water services installed this year.....	22
Old water services relaid this year.....	23
Frozen services which had to be thawed.....	4
Serivces discontinued.....	10

We had in this city on the 30th November, 1939,  
1,631 water services of which 1,097 are on meter and 534  
flat rate.

The Fredericton distribution system consists of 16.71  
miles of water main made up of the following sizes:-

10 inch main .....	1.53 miles
8 inch main.....	4.21 miles
6 inch main.....	9.09 miles
4 inch main.....	1.60 miles
3 inch main.....	.28 miles

(Continued)

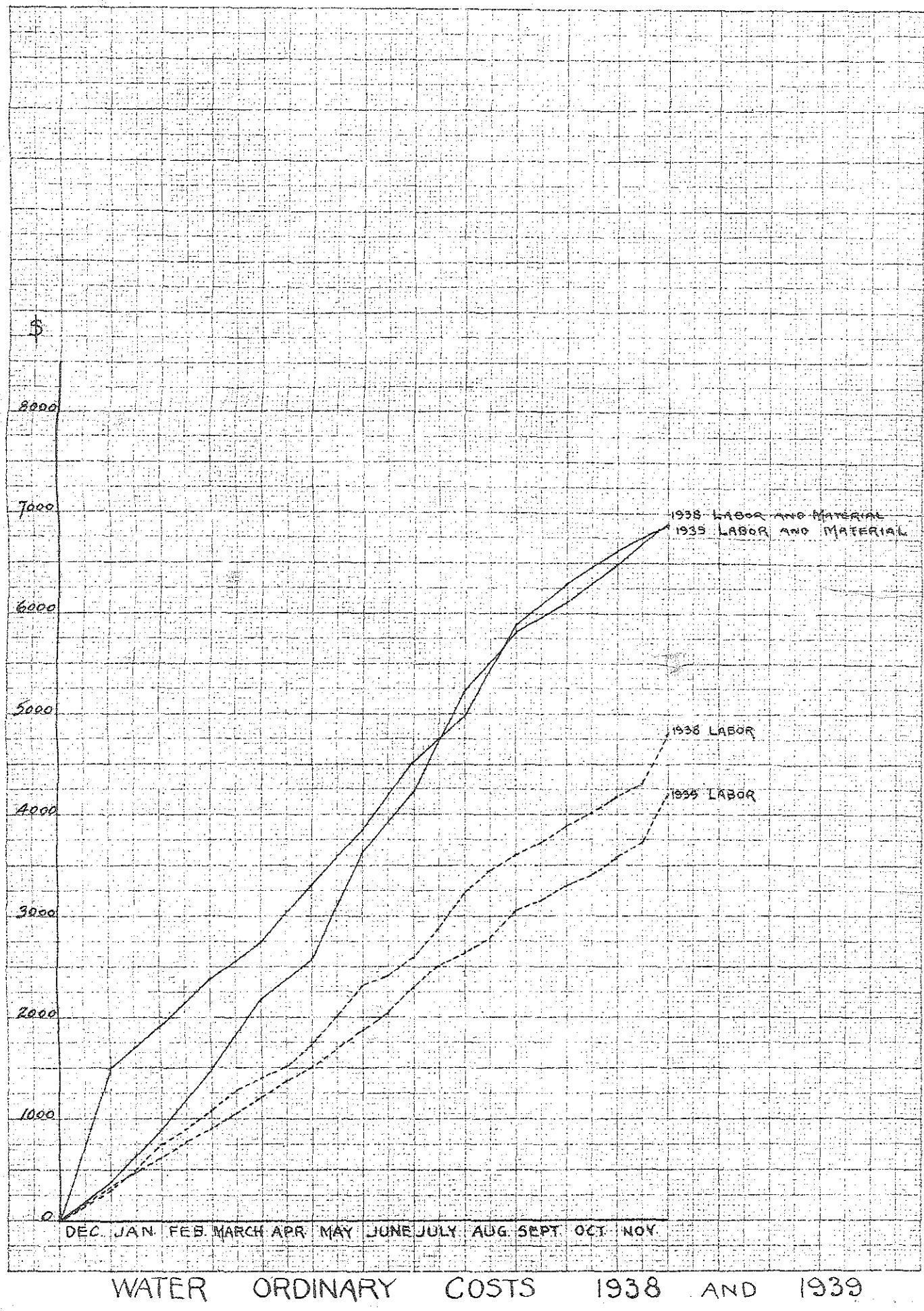
The water mains as a whole were not flushed out this year other than the flushing they received due to the watering carts, sewer flushing, etc. The dead ends, ~~one on Woodstock~~ were flushed. Reed, ~~one~~ on received complaints from nearby customers.

TABLE SHOWING COMPARATIVE YEARLY COSTS  
WATER ORDINARY

Year	Labour	Material	Gross Expenditure	Credits	Net Expenditure
1929	3,236.77	2,203.13	5,439.90		5,439.90
1930	3,647.97	2,513.18	5,961.15		5,961.15
1931	3,836.33	4,376.87	8,213.20	279.65	7,933.55
1932	2,666.30	1,854.06	4,520.36	122.47	4,397.89
1933	2,333.25	1,604.17	3,937.42	30.27	3,907.15
1934	3,247.51	4,112.34	7,359.85	891.23	6,468.62
1935	5,372.83	5,897.23	11,270.06	398.42	10,871.64
1936	4,303.14	3,725.91	8,029.05	392.35	7,636.70
1937	3,718.86	3,938.81	7,657.67	256.46	4,701.21
1938 #	4,797.47	2,254.68	7,052.15	153.11	6,899.04
1939	4,201.24	3,248.61	7,449.85	570.44	<del>7,449.85</del> 6,879.41

# The cost as shown on this table for 1938 does not include the capital cost expenditure of \$9,419.34

A graphic comparison of expenditure on water ordinary for years 1938 and 1939 is shown on the following plates:-



## WATER PUMPING STATION

The water pumping station under the Plant Superintendent and Chief Engineer John Malloy, has been carried on in its usual satisfactory manner.

During the year the low lift and service motor driven pumps were each packed and kept in good running order. The new bearing assembly was put in on the pump and of No. 2 service motors.

New brushes were put in No. 1 and No. 2 motor on the service pumps. The rings were ground and brushes trimmed about once a month on these motors.

The coagulating basin was emptied and washed three times during the year.

One valve on the influent of No. 3 filter was renewed with a new hydraulic 6 inch gate valve. All filter valves were cleaned and packed. Our 180 H. P. Diesel engine was given an overhauling. The pistons were pulled, carbon cleaned, all ports examined and cleaned. The water jackets were flushed out and cleaned. In fact everything was inspected and reassembled. The engine was then given a stiff service run and was found to be o. k. We had a man from the Fairbanks Morse Company, Saint John, N. B. to supervise and assist in this work.

In the early spring all pipes pertaining to the cooling water system of the stationary gas engine and the Fairbanks Morse Diesel engine which piping was located beneath the concrete floor of the oil engine room were dug up and renewed. This piping was found to be in bad condition having been badly eaten up by the ashes in which it had been buried, and almost filled up inside in many places. This piping was relaid with a simpler alignment. It was set in dry sand with a thin concrete layer on top to patch up the floor of the engine room.

Both boilers were inspected by the boiler inspector and reported o. k. The boiler settings and all piping in connection with the boilers was repaired, cleaned and painted.

The intake pier in the Saint John River was cleaned by pumping out the deposits of silt which had accumulated in it. The intake pipe from the pier to the low lift pump well was also flushed. Intake pier and guard pier were found to be in good condition. The low lift pump well was also cleaned out once during the year.

The pumping station grounds were as usual kept in good condition by the pumping station operators.

All the machinery in the water works and also the working condition of the water works employees was inspected about May 1 by the Provincial Factory Inspector. He gave the plant an excellent rating for maintenance of machinery, cleanliness of plant, and general working conditions.

The chemical treatment of the water, which consists of lime treatment and alum treatment to aid the filtering operations, was this year carried on as usual under the supervision of Dr. H. H. Hagerman, City Analyst, by the regular waterworks operators under the direct supervision of John Malloy, Chief Engineer and Plant Superintendent.

Following is Dr. Hagerman's report for the year 1939:-

FREDERICTON WATER SUPPLY - YEAR 1939

Total Count of Bacteria per c. c., Agar, two days.

Dates of Tests		Raw Water	Effluent	Tap Water	Per Cent. Removal
<b>1939</b>					
January	14	130	0		100
"	17	130	1	2	99.3
February	8	3600	0		100
"	12	4000	0	1	100
"	28	2500	1		100
March	7	400	0	1	100
"	17	1600	1		99.9
"	24	200	0	0	100
April	9	300	1	1	99.7
"	18	1500	1	1	99.9
"	30	12000	0	1	100
May	15	1200	1		99.9
"	27	500	1	2	99.8
June	13	230	2	1	99.1
"	24	5000	0		100
"	26	-	-	0	100
July	12	160	2	2	98.8
"	27	250	1		99.6
August	17	520	2		99.6
"	26	5000	1		100
September	22	200	2		99.0
"	24	160	2	1	98.8
October	11	600	5	1	99.5
"	22	1600	1	5	99.9
"	30	2200	2	20	99.9
November	15	600	5	0	99.5
"	22	2000	5	1	99.8
December	13	4000	2	1	99.9
"	30	425	0		100
		<u>51005</u>	<u>33</u>	<u>41</u>	
Averages.....		1822	1.18	2.27	

Average per cent removal equals 99.94

Results of Previous Years of comparison:

1933	2525	3.7	4.7	99.85
1935	2197	2.4	3.2	99.9
1936	2218	2.7	3.3	99.9
1937	1827	1.9	3.3	99.9
1938	1738	2.1	2.4	99.9

The usual alum and hypo treatment of the water has been continued during the past year with satisfactory results.

Fredericton, N. B.,  
January 9, 1940.

H. H. Hagerman

Water Pumping Station Cost 1939:-

Gross Expenditure.....	\$18,144.43
Credits.....	3,558.30
Net Expenditure.....	<u>\$14,586.13</u>

This credit of \$3,558.30 is made up as follows:-

27.01 tons of coal charged to pumping station and sold to other city departments.....	128.30
Water used by cement sidewalks.....	100.00
Water used by Roads and Streets Dept. ( to sprinkle and flush sewers).....	100.00
Water charged to Sewerage domestic for flushing domestic sewers.....	70.00
Water used in City Hall building.....	50.00
Water used in old street light building Carleton St...	25.00
Water used in City Yard.....	10.00
Water used in City Almshouse.....	25.00
Water used in City Parks.....	50.00
To yearly rental on 150 hydrants @ \$20.00.....	<u>3,000.00</u>
	\$3,558.30

The Gross Expenditure is divided as follows:-

City Payrolls for salaries of engineer at pumping station.....	\$ 5,580.00
Work done by other city employees in and around pumping station.....	<u>324.50</u>
Total City Payrolls.....	<u>5,904.50</u>
Material and Workmen's Compensation charge.....	<u>12,239.93</u>
Gross Expenditure.....	<u>\$18,144.43</u>

The material cost of \$12,239.93 is itemized as follows:-

Item #1	Light supplied and power supplied by Maritime Electric Co. 320977 K. W. H.....	\$ 7,416.46
Item #2	Transformer charges.....	151.92 ✓
Item #3	Lime, 5,700 lbs.....	196.26 ✓
Item #4	Alum, 80,640 lbs.....	1,145.09
Item #5	Coal, 228 tons (27.01 tons of preceding amount sold to other city departments).....	1,158.95
Item #6	Fuel Oil.....	0.00
Item #7	Engine Oil, 222 gals. Renown.....	139.35
Item #8	Motor Oil, 45 gals.....	27.24
Item #9	Gasoline, 228 gals.....	57.40
Item #10	Maintenance and repairs of the building and machinery.....	667.38
Item #11	New Installations.....	0.00
Item #12	Supplies, packing, rags, etc.....	119.77
Item #13	Stationary, forms, charts, etc.....	28.34
Item #14	Workmen's Compensation Board.....	68.25
Item #15	Dr. Hagerman's Salary.....	900.00
Item #16	Hoisting Chemicals.....	86.00
Item #17	Miscellaneous, telephone, etc.....	<u>77.52</u> \$12,239.93

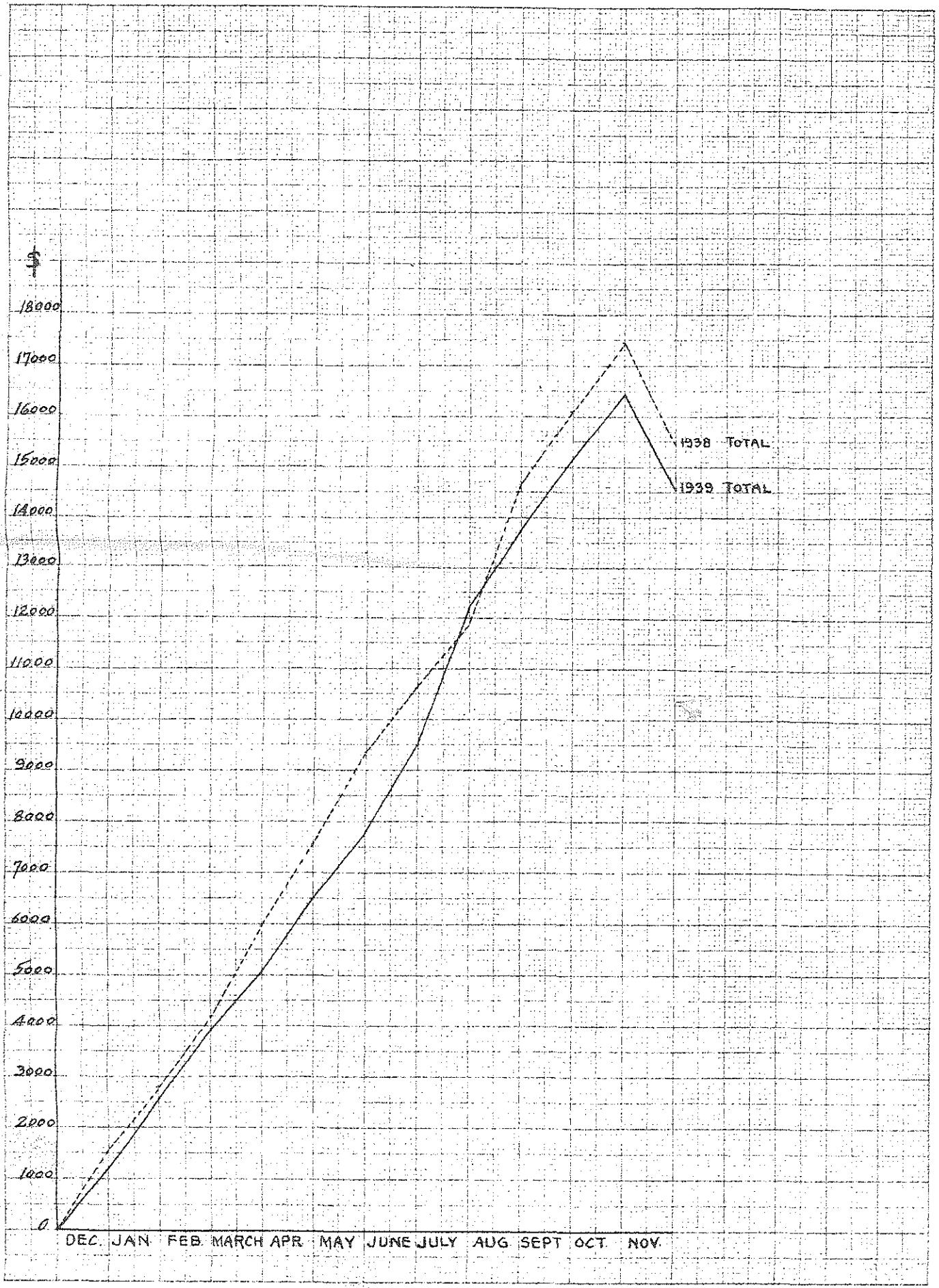
**COMPARISON OF WATER PUMPED AND COSTS  
FOR LAST THIRTEEN YEARS**

Year	I. G. Water Pumped	Yearly Gross Expenditure at Pumping Station	Pumping	diture of Water Ordin- ary and Gross Expenditure of Water Pump Station	Total
			Station cost per 1000 Gal. (using Gross Expenditure)		Yearly Water Costs (Net Expen- diture)
1927	198,168,000	18,040.65	9.10 cents	24,636.62	13.0 cts.
1928	192,890,000	18,245.05	9.46 "	26,122.73	13.5 "
1929	195,590,000	17,722.44	9.00 "	32,142.34	16.4 "
1930	204,405,000	16,791.22	8.21 "	22,752.57	11.1 "
1931	187,164,000	16,425.55	8.8 "	24,359.10	13.0 "
1932	171,032,000	16,915.58	9.9 "	21,313.47	12.5 "
1933	175,050,000	16,483.67	9.5 "	20,390.82	11.6 "
1934	202,720,000	15,999.50	7.9 "	22,468.12	11.1 "
1935	197,641,000	16,251.61	8.1 "	27,123.25	13.6 "
1936	193,450,000	17,189.21	8.8 "	24,825.91	12.8 "
1937	187,008,000	19,678.21	10.5 "	27,079.42	14.5 "
1938	181,555,000	19,239.49	10.6 "	26,138.53 #	14.4 "
1939	199,662,000	18,144.43	9.1 "	25,023.84	12.5 "

# This total cost of \$26,138.53 does not include the amount spent in water installations and charged to the capital account expenditure of \$9,419.34.

All these preceding costs shown under water pumping station and water ordinary do not include the costs of billing and collecting of water bills or any other overhead charges included in city government costs, nor do they include bond payments or sinking fund charges.

The following chart gives a graphic comparison of water pumping station costs for the year 1938 and 1939.



WATER PUMPING STATION COSTS 1938 AND 1939

Table compiled from Daily Pumping Station Charts year 1938, showing water pumped and material and machinery used in pumping.

At the conclusion of this report I am inserting the following table:-

TABLE SHOWING

PRINCIPAL PURCHASES OF MATERIAL USED BY DEPARTMENTS HERE BEFORE MENTIONED

Material	Amount Purchased 1939	Average Price f. o. b. Fredericton	Amount in Stock Dec. 31/39
4" Soil Pipe	110 feet	40¢ per foot	
4" Terra Cotta Pipe	0		
5" Terra Cotta Pipe	1600 feet	30¢ per foot	115 joints
6" Terra Cotta Pipe	0		
8" Terra Cotta Pipe	250 feet	42½¢ per foot	26 joints
10" Terra Cotta Pipe	1572½ feet	57½¢ per foot	79 joints
12" Terra Cotta Pipe	0		
15" Terra Cotta Pipe	0		
20" Terra Cotta Pipe	0		
24" Terra Cotta Pipe	0		
10" Corrugated Iron Pipe	164 feet	1.33¢ per foot	106 feet
24" Corrugated Iron Pipe	22 feet	3.50¢ per foot	
30" Corrugated Iron Pipe	18 feet	5.90¢ per foot	
36" Corrugated Iron Pipe	36 feet	6.30¢ per foot	
Portland Cement	5355 bags	70¢ per bag	
Dynamite 50%	50 lbs.	\$25.00 per 100#	
Brick	16350	\$16.00 per 1000	
Stone Trap Rock	(73.91 tons )154.205 (80.295 tons)	90¢ per ton 77¢ per ton	150 tons
Gravel (Pit)	3746½ yards 95 yards	90¢ delivered on job 50¢ on pile	
Calcium Chloride	30 ton	\$31.67 per ton	
7' Road Machine Blades	24	\$7.00	12
Lime	5700#	\$3.45 f.o.b. F'ton	7 Drums - 2100#
Alum	80640#-40.32 tons	\$1.42 f.o.b. F'ton	30.24 tons
Coal	602.185 tons	\$5.00-\$5.15 per ton in bins.	
Colas	22280 gallons	13¢-18¢ per gal.	450
Tarvia	33645 gallons	16.3¢ per gal.	
Light Tar or Asphalt RC3	16130 gallons	14.25¢ per gal.	
Asphalt Primer	2385 gallons	11¢ per gal.	
5/8" Copper tubing	2640 feet	12.40¢-13.61 per foot	300 feet
3/4" Copper tubing	0		66 feet
10" Cast Iron Water Pipe	850#	\$81.50 per ton	10 feet
8" Cast Iron Water Pipe	0		
6" Cast Iron Water Pipe			168 feet
4" Cast Iron Water Pipe			24 feet
Fittings for above 10-8-6-4			
Cast Iron Water Pipe	545#	.08¢ per lb.	
5" Galvanized Pipe	80'-1"	8.79¢-13¢ per foot	
1" Galvanized Pipe	226'-9"	\$13.10¢ per foot	
1½" Galvanized Pipe			
2½" Galvanized Pipe	36½'	38¢ per foot	
Lumber	47321	\$22.00-\$45.00 per 1000	
Lead	300#	\$8.75 per 100#	

3

Installation of Domestic Sewer Services 1938, & 1939.

Dec. 12 - 13	1938,	Colwell, Merritt	Queen St.	New
" 14	"	Kerr, Walter	Northland St.	Dug Out
" 14	"	Shephard, Ralph	Charlotte St.	Dug Out
April 28 - May 1, 1939,		Smith, Mrs. H.	Argyle St.	New
May 16 - 17	"	O'Leary, Mrs 744	Albert St.	New
" 23 - 24		Harrison, Mr. C. H.	Lansdowne St.	New
" 23 - 24		Ryan, Royal	Grey St.	New
" 24 - 26		MacFarlane,	Woodstock Rd.	New
" 26 - 27		Grant, Allen	Saunders St.	New
" 27 - 31		Dobblestein,	Aberdeen St.	New
June 17 - 20		Glass, Mr.	Charlotte St.	New
July 3		Thomas,	Waterloo Row	Dug Out
" 4 - 6		Fletchers,	Beaverbrook St	New
" 7 - 8		Veniet.	Scully St.	New
" 11		Hospital	Brunswick St.	New
" 19		Barkers,	King & Carleton St.	Dug Out
" 24 - 25		McLellan, Mrs. R. W. 235	University Ave	Releid
" 25 - 26		Fletcher, Frank	Albert St.	New
" 26		Lynch, Phos.	Aberdeen St.	New
Aug. 2	Domestic Sewer Main, 10"		Rookwood Ave.	New
" 10		McPeake,	Rookwood Ave.	New
" 11		Wilson, Mrs	Rookwood Ave.	New
" 30		McCain,	O'dell Ave.	Dug Out
Sep. 6 - 8		Vanwart, Dr.	Bruns. St.	New
" 21 - 23		McFarlane, Mrs	Needham St.	New
" 23 - 27		Brown,	Woodstock Rd.	New
Oct. 2 - 4		Smith, Arthur	Jubilee St.	New
Oct. 23 - 24		Manzer, R. W.	Woodstock Rd,	New
Nov. 1 - 2		MacDonald, E. O.	Woodstock Rd.	New

New Services = = = 23

Services Dug Out = = = 5

Services Relaid .

## WATER METERS INSTALLED

from

November 1st 1938, to October 31st, 1939,

R. W. McLellan,	235 University Ave.
J. Clark, & Son,	432 King St.
Canadian Legion,	675 Queen St.
Chas. Ross,	336 Regent St.
C. P. Glass,	432 Charlotte St.
Mr. Veniot,	678 Scully St.
E. Dibblesteyn,	540 Aberdeen St.
Harding Smith,	125 Argyle St.
Royal Ryan,	57 Grey St.
Allan Grant,	296 O'dell Ave.
Mrs. Bailey,	20 Lansdowne St.
C. H. Harrison,	30 Lansdowne St.
Thos. Lynch,	575 Needham St.
Geo. Delong, ( Meter Card )	285 University Ave. (Meter to be put on)

WATER METERS *Taken* ~~took~~ OFF

from

November 1st 1938 to October 31st, 1939

Stevenson, Est.,	161 King St. — <i>Water</i>
Calder Est.,	559 King St. <i>dit</i>
" "	555 King St. <i>dit</i>
Hurley, E. (Plumbers Shop)	541 " " <i>dit</i>
Vermeeron, J. C.	537 " " <i>dit</i>
Kitchen, H. G.	531 " " <i>dit</i>
Gov't, Prov. Bld'g, (House	470 " " <i>dit</i>
Evans, Russell. W.	Waterloo Row
Manuel, Mrs. E.	610 Union St.
Jamieson, Jas,	459 King St. ( Meter Card Missing )

Water Meters Stopped during Year 1939,

Time of <u>Meter Reading</u>	No. of <u>Stopped Meters</u>
Jan. 1939, .....	18
April " .....	19
October " .....	20
Total .....	57 .....

## Installation of Water Services Year 1938 - 1939,

Dec. 12, 1938,	Colwell, Merritt	Queen St.	New
" 23 - 29	Wilby, Mrs.	Regent St.	Relaid
April 28 - May 1 1939,	Smith, Mrs. H.	Argyle St.	New
March 6 - 10	" Fenety, W.	University Ave.	Relaid
" 6 - 10	Gerow, Miss A.	111 Lansdowne St.	Relaid
May 16 - 17	" O'Leary, Mrs	744 Albert St.	New
" 19 22	" Keenan, Mrs.	Charlotte St.	Relaid
" 22 - 23	" Good,	Brunswick St.	Relaid
" 23 - 24	" Harrison, Mr. C. H.	Lansdowne St.	New
" 23 - 24	" Ryan, Royal	Grey St.	New
" 24 - 26	" MacFarlane,	Woodstock Rd.	New
" 26 - 27	" Grant, Allan	Saunders St.	New
" 27 - 31	" Doblestein, E.	Aberdeen St.	New
June 17 - 20	" Glass, Mr.	Charlotte St.	New
" 21	York Hotel 3/4" Copper	Westland St.	Relaid
" 22	Farraline Home	Queen St.	Relaid
" 24	Saunders, Jas. 169-71	Westland St.	Relaid
" 24 - 26	" Kitchen, H. G.	Saunders St.	Relaid
" 27	" Anderson,	Brunswick St.	Relaid
" 28	" McMurray, Book Store	Queen St.	Relaid
" 29	" Baxter, 286	Aberdeen St.	Relaid
July 4 - 6	" Fletchers,	Beaverbrook St.	New
" 7 - 8	" Veniot,	Scully St.	New
" 10	" Gorman, David 250	King St.	Relaid
" 11 - 24	" Hospital	Brunswick St.	New
" 24 - 25	" Brewer, Mrs. 477	Charlotte St.	Relaid
" 24 - 25	" McLellan, Mrs. R. W. 235	University Ave.	Relaid
" 25 - 26	" Fletcher, Frank	Albert St.	New
" 27 - 28	" Leslie,	Regent St.	Relaid
" 28	" Lynch, Thos.	Needham St.	New
Aug. 1 - 2	" Kitchen, H. G. 216	Saunders St.	Relaid

## Installation of Water Services Year 1938 - 1939, Page 2

Aug.	14	1939,	Cobourn, Don	216 St. John St.	Relay
"	19	"	Davidson,	180 West'land St.	Relay
"	21	"	Munro,	241 Saunders St.	Relay
"	26 - 28		Monchan, Miss	43 Shore St.	Relay
"	31		Bird, Mrs.	468 Smythe St.	New
Sep.	6 - 8		Vanwart, Dr.	Bruns. St.	New
"	21 - 23		McFarlane, Mrs	Needham St.	New
"	23 - 27		Brown,	Woodstock Rd.	New
"	27 - 28		Brewer,	357 Bruns. St.	Relaid
Oct.	2 - 4		Smith, Arthur	Jubilee St.	New
Oct.	23 - 24		Manzer, R. W.	Woodstock Rd.	New
Nov.	1 - 2		MacDonald, E. O.	Woodstock Rd. (2 Water Services)	New
Nov.	13 - 14		Armstrong, Mrs.	Queen St	New
Nov.	15 - 18		Thomas, Frank	Waterloo Row,	Relaid

Over Water Services Installed = 22.

Water Services Relayed. 23