

ANNUAL REPORT OF THE ENGINEERING AND PUBLIC WORKS DEPARTMENT

1976



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TO HIS WORSHIP THE MAYOR & COUNCILLORS
OF THE CITY OF FREDERICTON

Madam and Gentlemen:

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

This report covers the period January 1, 1976 to December 31, 1976 and is 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 works:

Concrete Curb and Gutter	12.60 Miles
Concrete Sidewalk	2.59 Miles
New Street Construction	1.53 Miles
New Pavement	4.79 Miles
Recap (1/2" Minus)	2.66 Miles
Sealing City Streets (3/8" Minus)	2.74 Miles
Slurry Seal City Streets	2.66 Miles
Armour Coated City Streets	1.62 Miles
Chip Seal City Streets	2.92 Miles
4"-6"-8"-12"-14" Force main - Domestic Sewer	0.28 Miles
8"-10"-12"-16"-18" Etc. Gravity - Domestic Sewer ..	2.13 Miles
10"-12"-15"-18"-24"-30"-36"-42" Storm Sewer	4.81 Miles
4"-6"-8"-10"-12"-14"-16" Water Mains	4.29 Miles
Street Reconstruction	0.30 Miles

ALSO

282	Water Services Installed
280	Domestic Sewer Services Installed
9	Sprinklers Installed
24	Services Relayed (Water)
5	Services Relayed (Domestic Sewer)
765	Water Meters Installed
7	Extension of Existing Services

Contractors under contract with the Public Works Department of the City of Fredericton in 1976 constructed, completed construction or began construction, on the following projects:

- | | |
|-------------------------------------|--|
| Multi-Ventures Ltd. | - To installation of services on Bunker St., Elliot St., Page St., and Tapley Ct. |
| Spade Construction Ltd. | - To installation of services on Gulliver Drive. |
| Spade Construction Ltd. | - To installation of storm sewer on Islandview Dr., Oriole Ct., Mountain Dr., Silverwood Rise., and Silverwood Ct. |
| Diamond Construction (1961) Ltd. | - To supply and placement of asphalt. |
| E.J. Ludford Line Construction Ltd. | - To installation of services on Dykeman St., Bates St., and Wilcox St. |
| Multi-Ventures Ltd. | - To installation of services on Abbott Ct. |

- Spade Construction Ltd. - To installation of services on Kingsley Ct.
- Spade Construction Ltd. - To installation of Silverwood Water Supply Line.
- Stan Cassidy Ltd. - To supply & installation of Traffic Lights at Regent St. and Priestman St. Intersection.
- Spade Construction Ltd. - To installation of Water Main on St. John St. and Winslow St.
- E.J. Ludford Line Construction Ltd. - To installation of services in Vanier Subdivision.
- Spade Construction Ltd. - To installation of storm sewer on Charles Ave.
- Sandi-co Ltd. - To supply and delivery of winter sand.
- Canadian Salt Co. Ltd. - To supply and delivery of Highway Salt.
- E.J. Ludford Line Construction Ltd. - To installation of storm sewer in Park off of Flemming Rd. and Tilley Dr.
- Carson Construction Ltd. - To installation of Water Main along Transmission Line Rt.-of-Way, Fredericton North.
- Ludsan Enterprises Ltd. - To installation of Nashwaaksis River Sanitary Sewer Siphon.
- Seaboard Services Ltd. - To construction of concrete curb and gutter on Lincoln Road.
- Multi-Ventures Ltd. - To installation of services on the Lincoln and Glasier Roads.
- Diamond Construction (1961) Ltd. - To construction of concrete curb and gutter and sidewalk in the Nashwaaksis Area.
- John Kilburn & Sons Ltd. - To installation of storm sewer and watermain and sanitary sewer upgrading in the Nashwaaksis Area.
- Canada Gunite Co. Ltd. - To construction of Montgomery St. Reservoir Extension.
- John Kilburn & Sons Ltd. - To installation of storm sewer in Lower St. Mary's.
- John Kilburn & Sons Ltd. - To installation of storm sewer at Arlington St. Easement - Silverwood.
- Wendell Thomas & Sons Ltd. - To supply and delivery of pipe bedding sand.
- Harry C. Smith & Sons Ltd. - To supply and delivery of topsoil.

Gordon's Ready-Mix Ltd. - To supply and delivery of Ready-Mix Concrete.

Forbes & Sloat Ltd. - To supply and delivery of gravel and crushed rock.

Irving Oil Ltd. - To supply and delivery of gasoline.

M.E. Phillips & Son Ltd. - To installation of services on Killarney Rd.

Imperial Oil Ltd. - To supply and delivery of Diesel Fuel.

Carl S. Hay Ltd. - To construction of Salt Storage Shed, Services Depot, Fredericton North.

E.J. Ludford Line Construction Ltd. - To installation of house services on Killarney Road.

Consolidated Engines & Machinery Ltd. - To supply and delivery of Pumping Equipment for Fredericton Waterworks.

Texaco Canada Ltd. - To supply and delivery of Furnace Oil.

Flintkote Company of Canada Ltd. - To supply and placement of Chip Seal, Armour Coat and Slurry Seal.

C.W. Guthrie & Sons Ltd. - To supply and delivery of Cover Material to Sanitary Landfill.

Gerard Burns - Bulldozing Services - Sanitary Landfill.

The current expenditures for the twelve-month period January 1, 1976 to December 31, 1976 appear as follows:

	Appropriation	Net Expenditures	Debit	Credit
Common Services	\$484,223.	\$657,169.93	\$172,946.93	\$ -
Road Transport (Adm.)	13,500.	13,468.29	-	31.71
Roads & Streets	368,800.	369,866.01	1,066.01	-
Sidewalk Repairs	11,560.	3,014.88	-	8,545.12
Ditches & Culverts	39,500.	62,407.17	22,907.17	-
Storm Sewer	25,250.	30,211.42	4,961.42	-
Street Cleaning	175,200.	165,293.60	-	9,906.40
Snow & Ice Removal	433,800.	548,941.86	115,141.86	-
Street Lighting	181,050.	194,196.26	13,146.26	-
Traffic Services	19,630.	11,743.82	-	7,886.18
Off-Street Parking	1,390.	16.00	-	1,374.00
Garbage Collection	214,500.	214,739.00	239.00	-
Sanitary Landfill	110,790.	111,153.34	373.34	-
Old Burial Ground	15,790.	14,900.63	-	889.37
Loyalist Burial Gr.	184.	110.95	-	73.05
Wilmot Park	12,970.	12,762.36	-	207.64
Odell Park	17,750.	18,949.52	1,199.52	-
Carleton Park	8,295	8,102.65	-	192.35
Development of Park Areas	5,545.	4,548.58	-	996.42
Other Parks	2,320.	1,180.75	-	1,139.25
Public Works	96,630.	84,058.02	-	12,571.98
TOTALS	\$2,238,667.	\$2,526,835.04	\$331,981.51	\$43,813.47

Overall Debit \$288,168.04.

On July 9, 1973, amalgamation took place between the former City of Fredericton and surrounding areas. The amalgamated City occupies a total of some 51 square miles with a population of 44,572, as determined from the Preliminary 1976 Census Count.

Following is a table giving total mileages of municipal roads and streets, provincial routes, and by-passes divided with respect to types of surface on the various streets.

Location	Municipal Roads & Streets				Designated Routes			T.C.H. & By-Passes
	Asphalt	Gravel	Chip Seal	Total	Asphalt	Gravel	Total	
Fredericton South	51.780	3.876	2.571	58.227	12.737	1.605	14.342	8.895
Fredericton North	10.614	0.930	0.246	11.790	2.836	-	2.836	-
Nashwaaksis	5.151	3.720	17.092	25.963	5.077	-	5.077	-
Marysville	8.221	1.631	2.810	12.662	5.105	-	5.105	2.150
Barkers Point	0.366	0.390	3.561	4.317	2.751	-	2.751	-
Silverwood	1.895	0.646	0.261	2.802	-	-	-	1.713
Garden Creek	2.990	1.505	4.581	9.076	3.911	-	3.911	5.450
Douglas	-	0.580	2.428	3.008	1.587	-	1.587	-
Lincoln	-	0.234	1.809	2.043	-	-	-	0.836
Lower St. Marys	-	0.750	0.607	1.357	-	-	-	-
Killarney Road	0.206	-	-	0.206	2.629	-	2.629	-
TOTALS	81.223	14.262	35.966	131.451	36.633	1.605	38.238	19.044

TOTAL MILEAGE (MUNICIPAL AND DESIGNATED ROUTES) = 169.689

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 may be found by referring to the index.

Respectfully submitted,

W. L. Barrett

W. L. BARRETT
CITY ENGINEER

TOTAL YEARLY EXPENDITURE

The total yearly net expenditure under the direct supervision of the City Engineer in 1976 amounted to \$6,916,547.90, made up as follows:

Common Services	\$ 657,169.93
Road Transport	1,399,159.31
Environmental Health Services (Garbage & Waste Collection & Disposal)	325,892.34
Public Health Services (Cemeteries)	15,011.58
Cultural Services (Parks, Trees, Etc.)	129,601.88
Water Department	375,834.29
Domestic Sewer	561,952.94
Charges to Other Departments	468,571.04
<u>Capital Accounts</u>	
(a) Domestic Sewer	17,637.17
(b) Surface Sewer (Net Credit))	20,143.19 CR.
(c) Curb & Gutter) Permanent...	417,016.57
(d) Gravel Roads) ..Streets...	94,753.61
(e) Paving)	301,898.58
TOTAL PERMANENT STREETS	
(f) Water	793,525.57
(g) Industrial Park	462,699.23
(h) Traffic Lights	-
(i) City Hall	16,555.83
(j) N.I.P.	2,745.57
(k) Recreation	196.88
	1,954.00
<u>Service Development Projects</u>	
(a) Water	132,944.60
(b) Domestic Sewer	177,255.89
(c) Storm Sewer	608,952.04
(d) Service Depot & Equipment	746,727.94
(e) Solid Waste Disposal	15,121.10
<u>Other:</u> Traffic Impact Study	5,000.00
Ambulance	185.95
Queen's Visit	1,852.82
TOTAL	
	<u>\$ 6,916,547.90</u>

A graphic comparison of expenditures for labour, labour and hired machinery and total net expenditure (including labour and hired machinery) are shown on the following graph.

The locations of new construction completed or commenced in 1976 are shown on maps inserted after Page 5 of this report.

Following the maps is a graph showing the distribution of the City of Fredericton Tax Dollar in 1976.

TRANSPORTATION SERVICES

The expenditure under this heading is subdivided under two main headings:

- (1) Common Services
- (2) Road Transport

12,000,000

11,000,000

10,000,000

9,000,000

8,000,000

7,000,000

6,000,000

5,000,000

4,000,000

3,000,000

2,000,000

1,000,000

0

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

TOTAL NET EXPENDITURE - 1975 & 1976

1975 TOTAL

1976 TOTAL

1976 LABOUR & MACH.

1976 LABOUR

1975 LABOUR & MACH.

1975 LABOUR

Metric

335-5131

DISTRIBUTION OF THE 1976 TAX DOLLAR FOR THE CITY

GENERAL GOVERNMENT SERVICES

PROTECTIVE SERVICES

TRANSPORTATION SERVICES

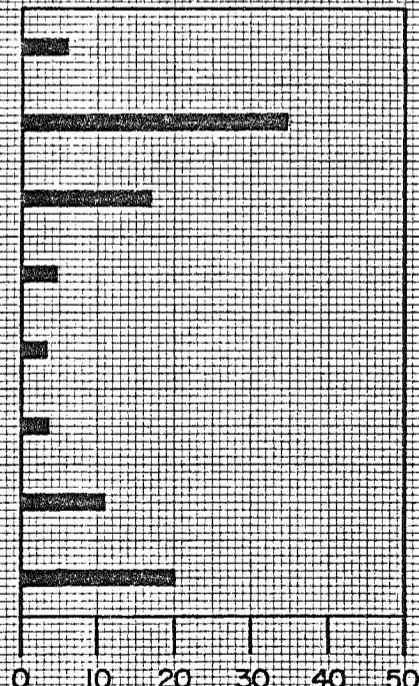
PUBLIC TRANSIT

ENVIRONMENTAL HEALTH SERVICES

ENVIRONMENTAL DEVELOPMENT SERVICES

RECREATION AND CULTURAL SERVICES

FISCAL SERVICES



(1) COMMON SERVICES: The total net expenditure under this heading was \$657,169.93 and is made up as follows:

GROSS EXPENDITURE:

Administration	\$ 22,594.63
Engineering Services	83,380.56
General Equipment	323,064.29
Workshops, Yards & Buildings	59,328.36
Research, Planning & Design	459.58
Other (Pensions, U.I.C., Workmen's Compensation, Etc.)	<u>300,808.15</u>
TOTAL	\$ 789,635.57

LESS CREDITS:

Administration	\$ 14.04
Engineering Services	4,363.00
Fuels & Lubricants	26,891.39
Maintenance & Repairs	6.00
Expendable Accessories	134.42
Small Tools	5.57
New Equipment - Journal Voucher (Bombardier & Essick Roller) .	11,517.12
City Yard (Space Rental)	9,300.00
North Side Depot (Materials)	165.50
Nashwaaksis Depot (Goods)	1,180.70
City Pension - Journal Vouchers (Inter Dept. Charges) .	48,655.92
Canada Pension - Journal Vouchers (Inter Dept. Charges) .	16,762.43
U.I.C. - Rebates	2,204.00
Fringe Benefits - Workmen's Compensation & Journals	10,838.94
Miscellaneous	<u>426.61</u>
NET EXPENDITURE	\$ 657,169.93

(2) ROAD TRANSPORT:

ADMINISTRATION: The total net expenditure under this heading was \$13,468.29 for administration costs.

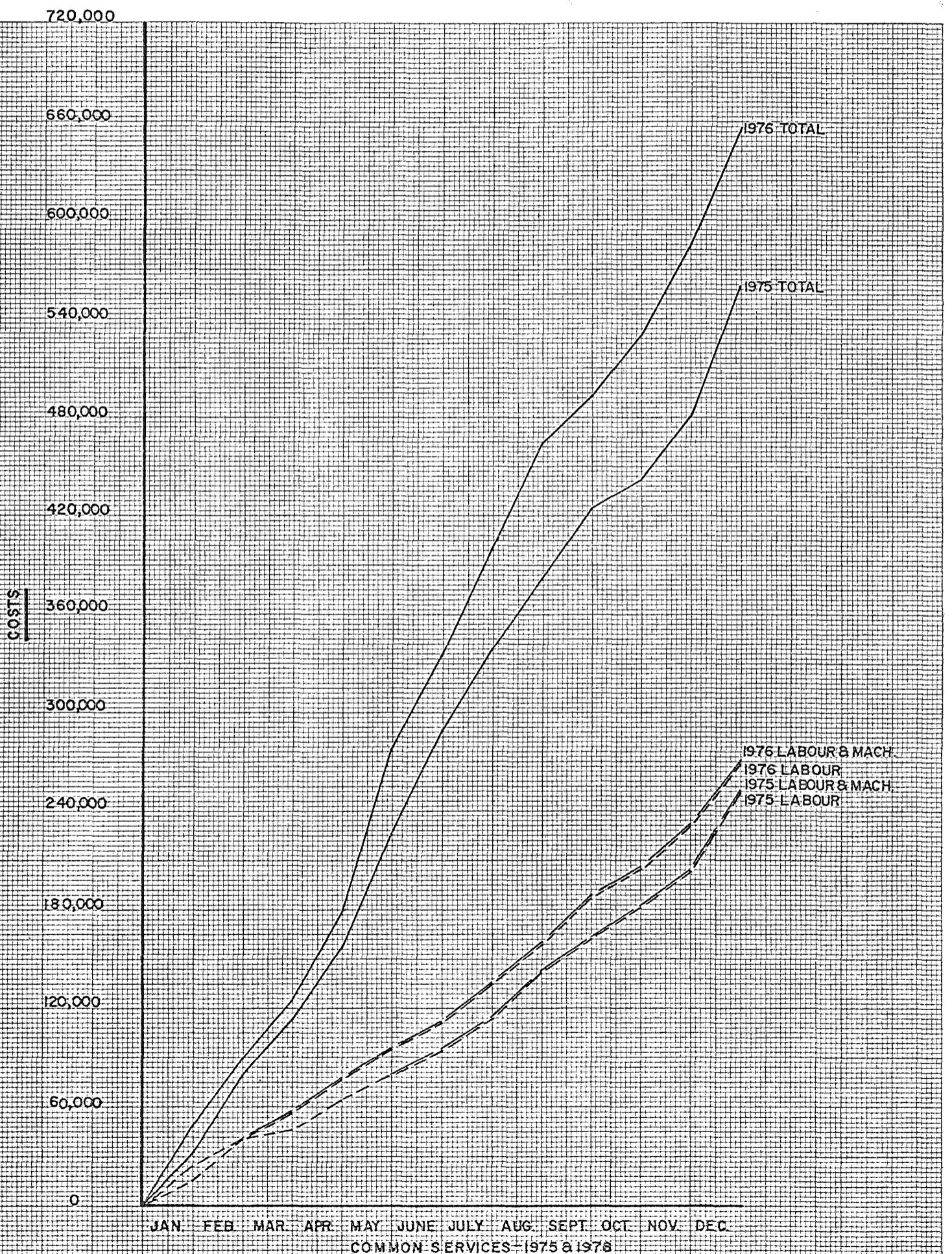
ROADS & STREETS:

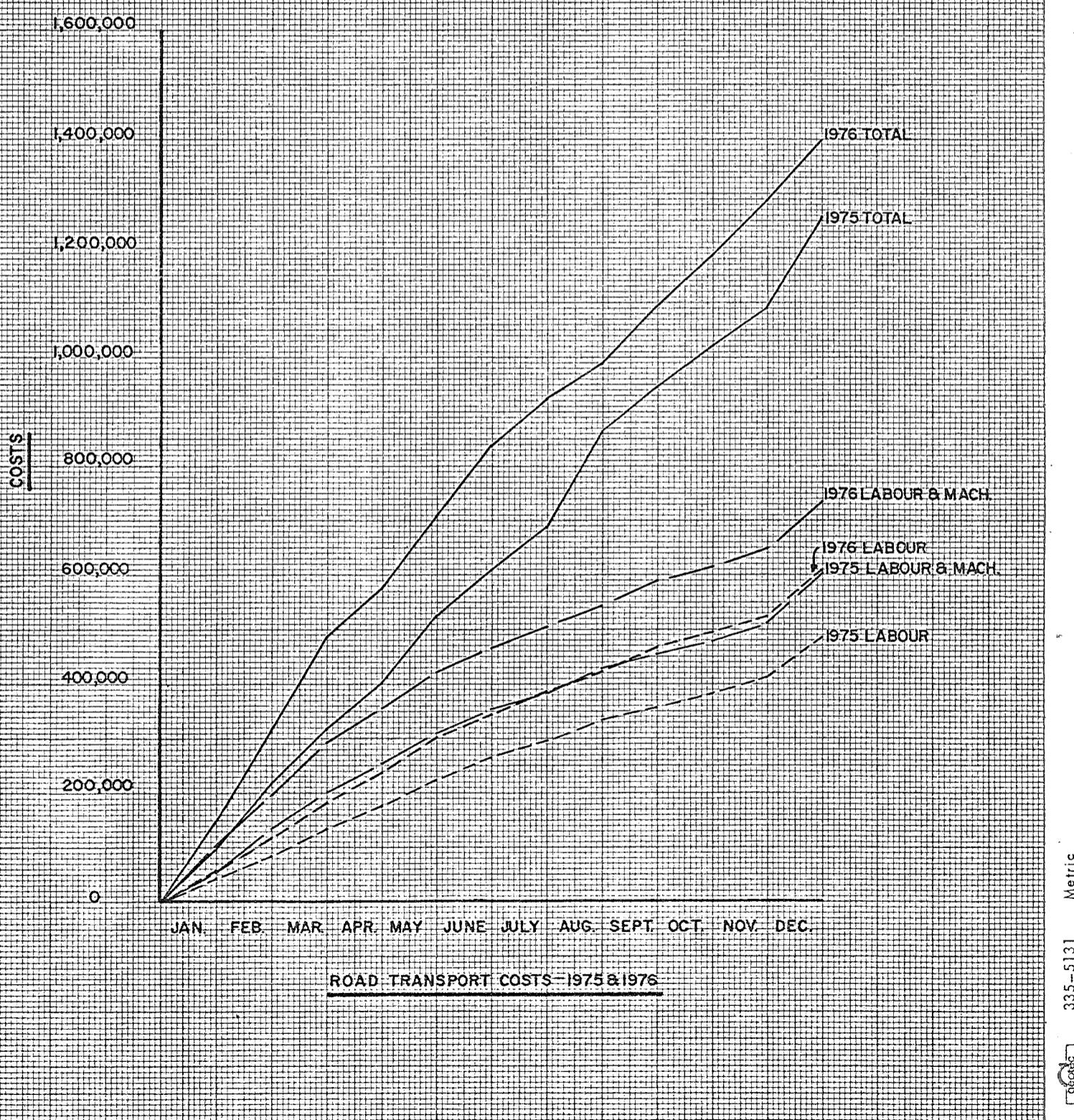
Gross Expenditure	\$ 1,225,840.71
Less Credits	<u>46,141.71</u>
NET EXPENDITURE	\$ 1,179,699.00

The above credit of \$46,141.71 is made up of labour and materials charged to private parties, materials such as gas, oil, etc., used by other City Departments, and materials such as sand, salt, etc. to other City Departments.

The GROSS EXPENDITURE is divided as follows:

Roadway Surfaces (Maintenance)	\$ 401,900.38
Sidewalk Repairs	4,034.88
Culverts & Ditches	68,607.17
Storm Sewer	31,783.26
Street Cleaning & Flushing	167,186.15
Snow & Ice Removal	363,607.50
Sanding and Salting	<u>188,721.37</u>
TOTAL	\$ 1,225,840.71





The NET EXPENDITURE of \$1,179,699. is divided into the following items. These items give an account of the amount and kind of work done by the Roads and Streets Department.

(a) ROADWAY SURFACES (MAINTENANCE)

(1) Gravel Roads, Slurry Seal, Chip Seal and Armour Coat

City Motor Grader: Road Patrol

Labour	\$ 4,950.24
City Machinery Charges	<u>6,112.00</u>
TOTAL	\$ <u>11,062.24</u>

Grading and Gravelling: Grading and application of Gravel on City Roads and Streets.

Labour	\$ 2,931.32
Hired Trucks and Machinery	45.00
City Machinery Charges	5,621.50
Materials	<u>46,272.12</u>
TOTAL	\$ <u>54,869.94</u>

7,272.95 Tons of Gravel and Crushed Rock was used in the maintenance and repairs to Gravel Roads under Roadway Surfaces.

This was purchased from Forbes & Sloat Ltd.

Slurry Seal, Chip Seal, & Armour Coat

In 1976, Flintkote Company of Canada Limited was contracted to Slurry Seal, Chip Seal and Armour Coat various City Streets.

The above heading includes the following:

- (1) Slurry Seal
- (2) Chip Seal - 3/8" Chips
- (3) Armour Coat - 3/4" - 1/2" - 3/8" Chips

(1) Slurry Seal

The following Roads and Streets were Slurry Sealed in 1976.

LOCATION

LINEAL FEET

Charlotte St. - University Ave. to Smythe St.	5,251
Brookmount St. - Parkhurst Dr. to Woodstock Rd.	306
Church St. - Queen St. to Brunswick St.	504
Waterloo Row - Elmcroft Place to Subway	<u>3,497</u>
Brunswick St. - Smythe St. to York St., Carleton St. to Subway	<u>4,502</u>
TOTAL	<u>14,060</u>

14,060 Lineal Feet = 2.66 Miles

(2) Chip Seal - 3/8" Chips

The following Roads and Streets were resurfaced with 3/8" Chips in 1976.

<u>LOCATION</u>	<u>LINEAL FEET</u>
Forest Hill Rd. - C.P.R. Tracks to Forest Acres Ct.	3,445
Hilton Rd.	1,822
Hubbard Rd.	1,067
McLeod Hill Rd. - Existing Armour Coat Section	5,200
Carmen Ave. - Colwell Dr. to C.P.R. Tracks	1,690
Cherry Ave. - MacFarlane St. to Oakland Ave.	2,210
TOTAL	<u>15,434</u>

15,434 Lineal Feet = 2.92 Miles

(3) Armour Coat - 3/4"-1/2"-3/8" Chips

The following Roads and Streets were resurfaced with 3/4"-1/2"-3/8" Chips in 1976.

<u>LOCATION</u>	<u>LINEAL FEET</u>
*Whiting Rd.	2,218
Pugh St. Extension to Moss Ave.	401
Maddison Ave. - Melvin St.	1,177
McLeod Hill Rd. - Existing Chip Seal to City Line	4,757
TOTAL	<u>8,553</u>

8,553 Lineal Feet = 1.62 Miles

* Expenditures charged to Land Account (Industrial Park)

Materials Used:

583.35 Tons 3/4" Chips @ \$9.10/Ton	\$ 5,308.49
733.20 Tons 1/2" Chips @ \$10.00/Ton	7,332.00
573.35 Tons 3/8" Chips @ \$10.55/Ton	6,048.84
34,700 Gallons Colas Emulsion @ \$0.68/Gallon	<u>23,596.00</u>
TOTAL	<u>\$ 42,285.33</u>

The street preparatory work, other than the laying in place was done by regular City Crews at an expenditure of \$153.65 and was made up as follows:

City Labour	\$ 98.65
City Machinery	<u>55.00</u>
TOTAL	<u>\$ 153.65</u>

TOTAL NET EXPENDITURE FOR SLURRY SEAL, CHIP SEAL, AND ARMOUR COAT WAS \$63,936.91 made up as follows:

Slurry Seal	\$ 30,629.30
Chip Seal	10,515.49
Armour Coat	22,638.47
Street Preparatory	<u>153.65</u>
TOTAL	<u>\$ 63,936.91</u>

(2) PAVED STREETS

Patching and repairing pavement, applying seal coat, light tar or asphalt to pavement.

Labour	\$ 108,390.02
Hired Trucks and Machinery	21.60
City Machinery	42,009.00
Materials	<u>79,368.27</u>
TOTAL	<u>\$ 229,788.89</u>

Patching material, when available, was obtained from Gorman Construction Limited, Flintkote Co. of Canada Limited and Diamond Construction (1961) Limited.

The total net expenditure for Pavement Repairs for 1976 including Workmen's Compensation, Pension Fund, Holiday and Sick Leave amounted to \$229,788.89 and was computed as follows:

Asphalt: Stock From 1975

225 Gallons of Emulsion	\$ 168.99
360 Gallons R-800 (RC-3)	<u>157.68</u>
	\$ 326.67

Plus Stock Purchased in 1976

900 Gallons RS-1	\$ 624.46
9,450 Gallons RS-2	<u>7,449.19</u>
	<u>8,073.65</u>
	\$ 8,400.32

Less Stock Dec. 31, 1976

450 Gallons RS-2	<u>300.00</u>
NET COST OF LIQUID	<u>\$ 8,100.32</u>

Expenditures:

Cost of Hot Mix Asphalt	\$ 76,879.65
Liquid Asphalt (Including Winter Asphalt)	15,620.78
Crushed Rock & Crusher Dust	4,171.59
City Labour (Payroll, Pensions, Etc.) ...	108,390.02
Hired Trucks & Machinery	21.60
City Machinery	42,009.00
Miscellaneous	<u>1,556.18</u>
GROSS EXPENDITURE	\$ 248,648.82

Less Credits:

Sundry Journals (Asphalt)	\$ 4,999.47
Journal Vouchers (Crushed Rock, Asphalt, Etc.)	<u>13,860.46</u>
	<u>18,859.93</u>
NET EXPENDITURE	<u>\$ 229,788.89</u>

(3) ASPHALT SEALING PROGRAM

NET EXPENDITURE

\$ 43,231.64

Under this heading the following streets were surface sealed with 3/8" Minus Asphalt by Diamond Construction (1961) Limited @ \$18.00/Ton in Place.

<u>LOCATION</u>	<u>LINEAL FEET</u>
St. John St. - George St. to Aberdeen St.	845
Westmorland St. - Aberdeen St. to Saunders St.	260
Union St. - St. Marys St. to Nr. Douglas Ave.	1,755
Gibson St. - MacLaren Ave. to Nr. #450	2,210
Union St. - Nashwaak Bridge to Miles St.	1,560
York St. - Saunders St. to Aberdeen St.	<u>325</u>
TOTAL	<u>6,955</u>

6,955 Lineal Feet - 1.32 Miles

Following is the expenditure for materials and labour for the surface sealing of the above streets:

Labour	\$ 2,903.31
City Machinery	1,381.00
Materials	<u>39,662.97</u>
GROSS EXPENDITURE	43,947.28

Less Credit:

N.I.P. Share	<u>715.64</u>
NET EXPENDITURE	\$ <u>43,231.64</u>

Street preparatory work for Surface Seal was done by City Crews.

(4) CURB AND GUTTER REPAIR

NET EXPENDITURE

\$ 6,442.17

The total expenditure under this heading was made up as follows:

Labour	\$ 5,541.86
City Machinery Charges	1,154.50
Materials	<u>2,468.01</u>
TOTAL	9,164.37
<u>Less Credit:</u>	<u>2,722.20</u>
NET EXPENDITURE	\$ <u>6,442.17</u>

The above credit of \$2,722.20 was for Sundry Journals regarding curbing. Included in the \$2,722.20 is the N.I.P. share of \$1,378.20 towards Curb and Gutter Repairs.

(5) DRIVEWAY ENTRANCES (MAINTENANCE)

NET EXPENDITURE

\$ 22,970.14

The total expenditure was made up as follows:

Labour	\$ 10,935.44
City Machinery Charges	4,999.00
Materials	<u>7,035.70</u>
TOTAL	\$ <u>22,970.14</u>

(6) RIGHTS-OF-WAY, GUARD POSTS, ETC.

Item	Labour Hired Trucks & Machinery	City Machinery Charges	Materials	Credits	Totals
Sodding & Seeding	\$ 2,418.74	\$ 458.00	\$ 334.90	\$ -	\$ 3,211.64
Rip Rapping	5,050.11	1,590.50	157.20	-	6,797.81
Cutting Grass	4,955.27	1,485.00	64.00	-	6,504.27
Guard Rails	4,527.20	1,235.50	939.09	98.15	6,603.64
Clearing Rt.-of-Ways	732.36	148.00	114.72	-	995.08
TOTALS	\$17,683.68	\$4,917.00	\$1,609.91	\$98.15	\$24,112.44

(b) SIDEWALKS (MAINTENANCE)

The expenditure under this heading amounted to \$3,715.88 and was made up as follows:

Labour	\$ 2,639.26
City Machinery Charges	701.00
Materials	<u>1,395.62</u>
GROSS EXPENDITURE	4,735.88
LESS CREDITS	<u>1,020.00</u>
NET EXPENDITURE	\$ <u>3,715.88</u>

The credits were for the following:

Sundry Journals (Sidewalks) \$ 1,020.00

(c) STREETS (GENERAL MAINTENANCE)

The expenditure under this heading is for ditching and installation of culverts.

The total net expenditure under this heading was \$54,671.84 and is made up as follows:

Labour (Ditching)	\$ 13,402.36
Labour (Culverts)	18,448.33
City Machinery (Ditching)	14,167.00
City Machinery (Culverts)	16,623.00
Journal Vouchers (Pensions)	1,640.89
Workmen's Compensation Board --	
Assessment	890.00
Lofstrom's Drilling & Blasting	
(Drilling & Blasting)	4,143.75
Materials	<u>30,081.84</u>
GROSS EXPENDITURE	60,871.84
LESS CREDITS	<u>6,200.00</u>
NET EXPENDITURE	\$ <u>54,671.84</u>

The above credits were for culvert installations on newly subdivided lots on ditched streets.

(d) STORM SEWER

GROSS EXPENDITURE	\$ 39,394.76
LESS CREDITS	<u>1,571.84</u>
NET EXPENDITURE	\$ <u>37,822.92</u>

The above credits were for Journal Vouchers and work done and materials used for private parties.

The storm 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, amounting to \$37,822.92 made up as follows:

Labour	\$ 19,589.98
City Machinery	7,611.50
Materials Less Credits	<u>10,621.44</u>
TOTAL	\$ <u>37,822.92</u>

(e) STREET CLEANING AND FLUSHING

GROSS EXPENDITURE	\$ 195,689.65
LESS CREDITS	<u>1,892.55</u>
NET EXPENDITURE	\$ <u>193,797.10</u>

The GROSS EXPENDITURE is made up as follows:

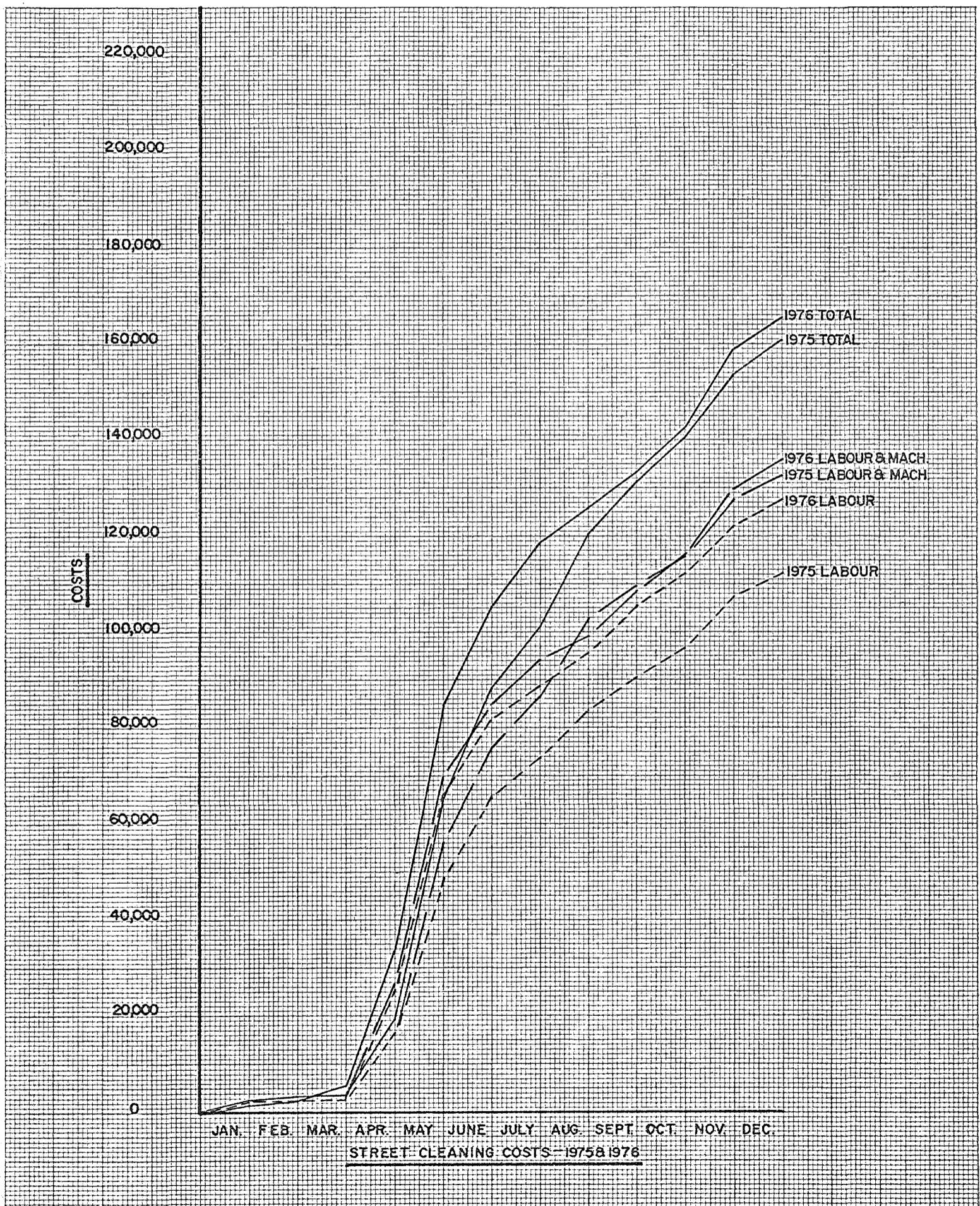
Hired Machinery	\$ 8,342.00
Personnel - Labour, Pensions, Compensation	105,353.12
General Services - Trucking & Repairs.	28,990.11
Gas, Oil, Grease	3,176.65
Brooms - Main & Gutter	8,637.43
Brooms - Hand	990.83
Anti-Litter Cans	6,197.72
Dust Control	5,233.29
City Machinery	<u>28,768.50</u>
TOTAL ...	\$ <u>195,689.65</u>

Two Wayne Sweepers, #50 and #52, and a Vacuum-Sweep, #53-75, carried out the cleaning of City Streets. These machines worked a total of 3,304 hours from April 1, 1976 to November 26, 1976.

A Sicard Master Flusher, #51, carried out the flushing of City Streets. The flusher worked 37 hours from May 6, 1976 to June 23, 1976.

The following is a list of machinery used in street cleaning and dust control (gravelled roads) together with their repair costs for 1975 and 1976, including tires and tubes:

Name of Machine	Year Purchased	1975 Repairs	1976 Repairs
Wayne Sweeper #50	1975	\$ 149.59	\$ 3,252.30
Sicard Flusher #51	1955	3,693.71	829.31
Wayne Sweeper #52	1968	7,864.26	6,818.76
Vacuum-Sweep #53-75	1972	88.65	1,465.81
	TOTALS	\$11,796.21	\$12,366.18



(f) SNOW AND ICE REMOVAL

(a) Salting and Sanding Streets & Sanding Sidewalks

Storing sand and salt in Winter Storage Piles and spreading same on slippery streets and sidewalks.

Streets:

Personnel (Labour, Pensions, Compensation)	\$ 53,612.07
General Services (Hired Trucks & Machinery & Repairs)	6,277.89
Expendable Accessories	703.44
City Machinery Charges	38,604.50
Materials	<u>110,070.39</u>
TOTAL EXPENDITURE	\$ 209,268.29

Sidewalks:

Labour	\$ 15,093.20
City Machinery Charges	3,185.50
Materials	<u>2,964.38</u>
TOTAL EXPENDITURE	21,243.08
LESS CREDITS	<u>1,978.40</u>
TOTAL NET EXPENDITURE	\$ 228,532.97

The above credits were for Journal Vouchers regarding sand and machinery and for a switch returned to Battery & Electric Ltd.

17,175 Cubic Yards of sand was purchased during the Fall of 1976. The sand was supplied by Sandi-Co Ltd. at a price of \$1.65 per Cubic Yard, delivered to the City Stock Piles at Maintenance Depot, Regent St. and Services Depot, Killarney Rd. (St. Marys St.).

In 1976, 3,408.26 tons of salt was used for ice control. The cost and distribution charges are included under the above heading. The City purchased 3,371.26 tons of salt in 1976. In stock as of December 31, 1976 100 Tons.

(2) SNOW CONTROL

STREETS: 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.

The total cost of Snow Control (Streets) amounted to \$468,481.03 and was made up as follows:

Personnel (Labour, Pensions, Compensation)	\$ 173,755.84
General Services (Repairs & Maintenance, Hired Trucks & Machinery, Etc.)	135,963.26
City Machinery Charges	125,949.00
Expendable Materials	31,211.71
Miscellaneous	<u>1,637.16</u>
TOTAL	\$ 468,516.97

The following table shows comparative labour (including hired trucks & machinery) costs of snow control for the year 1974 to 1976 inclusive:

	1974	1975	1976
Snow Plowing Roads & Streets	\$65,871.65	\$122,970.26	\$119,134.63
Blowing, Hauling & Shovelling	13,333.30	56,253.11	84,482.92
Catch Basins	16,329.30	23,998.42	36,566.77
Snow Fences	2,215.80	1,104.62	994.99
Plowing Parking Lots	640.12	665.02	462.15
Repairs (Labour - Equipment)	1,516.72	2,991.17	5,213.38
Repairs (Flood)	-	-	2,341.88
TOTALS	\$99,906.89	\$207,982.60	\$249,196.72

The City of Fredericton was responsible for plowing, sanding and salting 169.689 Miles of Roads and Streets during 1976.

The overall cost for plowing, salting and sanding City Roads and Streets was \$677,785.26 and was made up as follows:

Personnel (Labour, Pensions, Compensation)	\$ 227,367.91
General Services (Hired Trucks & Machinery, Repairs, Etc.)	142,241.15
City Machinery Costs	164,553.50
Materials (Sand & Salt)	110,070.39
Expendable Materials	31,915.15
Miscellaneous Costs	1,637.16
TOTAL	\$ 677,785.26 (1)

Therefore, the unit cost of plowing, sanding, and salting one mile of road (street) was \$3,994.28.

SIDEWALKS:

78.09 Miles of sidewalk were plowed during the winter months of 1976.

The total expenditure for plowing amounted to \$25,782.97 and was made up as follows:

Labour	\$ 16,225.97
Hired Machinery	4,849.50
City Machinery	4,707.50
TOTAL	\$ 25,782.97

The unit cost per mile for plowing and sanding sidewalks was \$602.20 and was made up as follows:

Labour	\$ 31,319.17
Hired Trucks & Machinery	4,849.50
City Machinery Charges	7,893.00
Materials (Sand)	2,964.38
TOTAL	\$ 47,026.05 (2)

$$\text{Unit Cost per Mile} \quad \frac{\$47,026.05}{78.09} = \$602.20$$

GROSS COST OF SNOW CONTROL --

ADD (1) AND (2)	\$ 724,811.31
LESS CREDITS	<u>3,422.95</u>
NET COST (Including City Machinery) ..	\$ <u>721,388.36</u>

NET COST OF SNOW CONTROL

(Less City Machinery Charges \$172,446.50)	<u>\$548,941.86</u>
--	---------------------

Snowfall in Fredericton for the last five years was as follows:

1972	163.0 Inches (414.02 Cm.)
1973	62.0 Inches (157.48 Cm.)
1974	84.2 Inches (213.87 Cm.)
1975	128.4 Inches (326.14 Cm.)
1976 (Agriculture Canada)	107.1 Inches (271.90 Cm.)
1976 (Airport Weather Office)	142.2 Inches (361.10 Cm.)

The following equipment is used on Snow Control and Ice Removal and the repair and maintenance cost for this equipment is shown as follows:

Name of Vehicle	Ins. No.	Year Purchased	1975 Repairs	1976 Repairs
International 3 Ton	20	1968	\$ 1,560.81	\$ 1,983.23
G.M.C. 3 Ton	24	1975	-	137.70
G.M.C. 3 Ton	25	1975	-	364.60
Ford 3 Ton	26	1975	-	25.73
Dodge 3 Ton	60	1967	3,050.89	147.07
Ford 3 Ton (Traded)	61	1960	-	8.38
Chevrolet 3 Ton (Includes Boiler)	63	1971	257.15	37.89
Chevrolet 3 Ton	64	1974	-	326.15
Sicard Snow Blower	86	1949	1,434.33	713.95
Sicard Snow Blower	87	1961	1,275.93	285.12
Sicard Snow Blower	88	1963	1,010.25	3,216.86
SMI Snow Blower	89	1974	386.36	1,126.67
Chevrolet 5 Ton	101	1975	2,009.65	180.08
Ford 5 Ton	102	1975	1,674.03	815.47
G.M.C. 5 Ton	103	1975	1,035.49	541.06
G.M.C. 5 Ton	104	1975	868.06	22.73
G.M.C. 5 Ton	105	1975	148.68	627.58
Bombardier	125	1976	-	54.65
Bombardier	132	1974	61.89	357.84
Bombardier	133	1974	70.37	187.43
Bombardier	134	1968	2,009.27	137.32
Dodge 3 Ton Sand Spreader	215	1966	1,501.76	1,266.30
Trailor 15 H.P. Boiler	256	-	-	21.56
TOTALS	-	-	\$18,354.92	\$12,585.37

(4) STREET LIGHTING

The Multiple Lighting System for the City of Fredericton as of December 31, 1976 consisted of:

10 - 125 Watt M.V. Wood @ \$52.40 per light per year
 2 - 175 Watt M.V. Conc. @ \$73.00 per light per year
 199 - 175 Watt M.V. Wood @ \$60.40 per light per year

220,000

200,000

180,000

160,000

140,000

120,000

100,000

80,000

60,000

40,000

20,000

COSTS

1976 TOTAL

1975 TOTAL

JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
STREET LIGHT COSTS - 1975 & 1976

356	-	175 Watt Ref. M.V. @ \$46.00 per light per year
14	-	250 Watt M.V. Conc. @ \$92.00 per light per year
9	-	250 Watt M.V. Wood @ \$79.90 per light per year
1,663	-	250 Watt Ref. M.V. @ \$65.50 per light per year
561	-	400 Watt Ref. M.V. @ \$88.00 per light per year
1	-	500 Watt Ref. Inc. @ \$65.40 per light per year
2	-	400 Watt Flood Light @ \$0.29 per light per year

The total street lighting costs for 1976 were as follows:

GROSS EXPENDITURE	\$ 194,196.26
LESS CREDITS	<u>-</u>
NET EXPENDITURE	<u>\$ 194,196.26</u>

The above expenditure is made up as follows:

Multiple Lighting System Contract	\$ 191,344.67
New Installations	2,632.32
New Bulbs	<u>219.27</u>
NET EXPENDITURE	<u>\$ 194,196.26</u>

(5) TRAFFIC SERVICES

The expenditure under this heading is made up as follows:

- (1) Street Signs
- (2) Off-Street Parking

(1) Street Signs:

Purchasing, repairing and installing Street Signs on City Streets.

The expenditure under this heading amounted to \$11,743.82 and was made up as follows:

Personnel (Labour, Pensions, Workmen's Compensation, Etc.)	\$ 3,522.53
Repairs and Maintenance	675.97
Materials	<u>7,783.32</u>
GROSS EXPENDITURE	11,981.82
LESS CREDITS	<u>238.00</u>
NET EXPENDITURE	<u>\$ 11,743.82</u>

The above credit of \$238.00 was for a Journal Voucher regarding City Decals.

(2) Off-Street Parking:

The expenditure under this heading amounted to \$16.00 and was made up as follows:

Personnel (Labour, Pensions, Workmen's Compensation, Etc.)	<u>\$ 16.00</u>
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The above costs are for the Workmen's Compensation Board Assessment.

The following is a list of vehicles and machinery used in
COMMON SERVICES, together with the repair costs for 1975 and 1976,
including tires and tubes:

Name	Ins. No.	Year	1975 Repairs	1976 Repairs
Ford Custom (Traded)	1	1972	\$ 242.48	\$ 318.02
Chevrolet	1	1976	-	75.12
Dodge 1/2 Ton	3	1975	88.68	224.68
Chevrolet 1/2 Ton Panel	4	1974	111.88	228.27
Dodge 1/2 Ton (Traded)	6	1971	1,272.60	333.67
Chevrolet 1/2 Ton Pick up	6	1976	-	130.53
Chevrolet 1/2 Ton Pick up	8	1972	241.96	579.14
Ford - 3/4 Ton Pick up	10	1973	-	1,031.05
G.M.C. 1/2 Ton Pick up	15	1974	75.30	96.18
G.M.C. 3 Ton Dump	16	1973	271.94	1,384.21
Dodge 3 Ton Dump	17	1969	1,104.45	1,735.04
Chevrolet 3 Ton Dump	18	1971	1,807.24	598.22
Ford 3 Ton Dump	19	1970	973.98	1,621.77
Ford 3 Ton Dump	21	1972	520.99	1,082.79
International 3 Ton (Traded)	22	1955	1,555.26	98.83
Dodge 3 Ton	22-76	1976	-	54.17
Dodge 3 Ton Dump	23	1974	319.76	83.56
G.M.C. 3 Ton Dump	24	1975	964.03	888.53
G.M.C. 3 Ton Dump	25	1975	737.84	1,311.53
Ford 3 Ton Dump	26	1975	-	810.35
Dodge 3 Ton Dump	27-76	1976	-	62.45
Dodge 3 Ton Dump	28-76	1976	-	620.84
Galion Grader 118	36	1966	8,009.72	3,185.37
Austin Western 300 Pacer	37	1962	1,526.86	5,381.89
Galion Grader T-400	38	1972	3,977.57	6,799.77
Caterpillar 120 Grader	39	1974	1,757.09	4,065.53
Caterpillar 120 Grader	40	1974	2,223.68	10,754.60
Caterpillar 120 Grader	41	1974	665.17	3,658.80
Caterpillar 120 Grader	42	1974	1,376.05	1,879.49
Galion T-500A Grader	43	1976	-	38.51
Galion T-500A Grader	44	1976	-	38.50
Galion T-600A Grader	45	1976	-	53.11
Dodge Vacall	54	1971	1,097.66	716.10
Hy-Hoe Backhoe	55	1964	7,062.81	2,607.86
Unit Backhoe	56	1957	2,958.85	-
Hopto Backhoe	57	1973	120.72	27.47
Ingersol Rand Compressor	58	1969	227.58	321.70
Hy-Hoe Backhoe	59	1974	2,362.48	5,265.96
Chevrolet 3 Ton	63	1954	-	309.28
International 3 Ton (Traded)	62	1951	167.72	-
Chevrolet 3 Ton	64	1974	1,553.38	292.88
Ingersol Rand Compressor	67	1957	534.61	24.66
Atlas Copco Compressor	68	1964	130.43	405.93
Atlas Copco Compressor	70	1974	396.50	32.22
Essick Roller	72	1970	417.37	1,174.59
Essick Roller	73	1971	480.71	632.01
Essick Roller	75	1974	68.19	817.63
Ford Tractor	82	1974	-	58.28
Chevrolet 5 Ton	101	1975	-	414.95
Ford 5 Ton	102	1975	-	11.39
G.M.C. 5 Ton	103	1975	-	919.52
G.M.C. 5 Ton	104	1975	-	1,050.96
G.M.C. 5 Ton	105	1975	-	1,807.38
Ford 1/2 Ton Crew Cab	111	1974	669.51	1,207.49
Ford 1/2 Ton Crew Cab	112	1974	284.30	1,622.13
Ford 3/4 Ton	120	1974	12.23	238.00
International Scout II	121	1975	34.15	169.94
International Scout II	122	1975	-	115.34
Kaiser Jeep	127	1971	780.58	349.00
Ford Bronco	128	1969	357.54	291.45

Name	Ins. No.	Year	1975 Repairs	1976 Repairs
International Scout	129	1972	\$ 770.12	\$ 117.97
International Scout	130	1973	470.18	368.48
International Scout	131	1974	252.41	429.67
Michigan 55A Loader	135	1974	787.29	2,799.54
Michigan 55A Loader	136	1974	566.92	4,098.33
Michigan 55A Loader	137	1974	768.02	3,736.69
Michigan 55A Loader	138	1974	440.08	1,334.40
John Deere Loader	141	1975	123.82	492.04
Allis Chalmers Loader	142	1970	4,097.08	4,284.63
Case W-18 Loader	143	1974	2,335.29	293.98
Caterpillar D5 Bulldozer	146	1969	1,653.41	12,675.84
International TD8C Bulldozer	147	1971	4,387.27	124.13
Case 850 Bulldozer	148	1968	181.90	244.54
Case 750 Bulldozer	149	1965	78.78	707.39
Dodge 1/2 Ton	201	1973	818.47	2,495.55
Chevrolet 3 Ton	202	1974	805.66	392.77
Ford 5 Ton	203	1975	-	437.93
Ford 1 Ton	204	1969	2,290.65	637.58
Dodge 3 Ton Dump	205	1972	1,910.63	4,771.95
Case 680 Backhoe - Loader	207	1972	2,624.71	5,181.33
Case 310 Bulldozer	208	1968	369.61	2,521.84
Essick Roller	214	1974	-	23.48
Case 680 Backhoe Loader (Traded)	253	1972	3,750.27	5,098.67
Case 780 Backhoe	253	1976	-	489.00
Case 450 Bulldozer	254	1973	141.83	2,154.36
Gardner Denver Compressor	255	1968	59.68	389.15
TOTALS			\$79,225.93	\$126,409.88

The following items of machinery were purchased in 1976 and charged to TRANSPORTATION SERVICES:

3 - Flat Bottom Bodys 14' x 7' (inside)
4' Headboard 18" Sideboards 2" Hardwood Floor & Mud Flaps

Cost	\$ 2,625.00
Plus 8% SS&E Tax	210.00
TOTAL COST	\$ <u>2,835.00</u>

1 - Chevrolet 4 Door -- Asset No. 1

Cost	\$ 4,577.43
Less Trade-in of 1972 Ford Sedan	<u>1,500.00</u>
Sub-total	3,077.43
Plus 8% SS&E Tax	246.19
License & Registration	6.00
Rustop	<u>160.00</u>
TOTAL COST	\$ <u>3,489.62</u>

1 - Chevrolet 1/2 Ton -- Asset No. 6

Cost	\$ 4,730.00
Less Trade-in of 1971 Dodge 1/2 Ton	<u>300.00</u>
Sub-total	4,430.00
Plus 8% SS&E Tax	354.40
License & Registration	<u>6.00</u>
TOTAL COST	\$ <u>4,790.40</u>

3 - Dodge 3 Ton Trucks -- Asset No.'s 22-76, 27-76, 28-76

Cost	\$ 31,065.00
Less Trade-ins of 1951 International)	
3 Ton)	
1955 International) 7,275.00	
3 Ton)	
1960 Ford 3 Ton)	
Sub-total	23,790.00
Plus 8% SS&E Tax	1,903.20
License Plates	<u>18.00</u>
TOTAL COST	\$ <u>25,711.20</u>

CAPITAL ACCOUNT CURB & GUTTER

The net expenditure under this heading amounted to \$417,016.57.

For the above expenditure, concrete curb and gutter was constructed at the following locations:

<u>Location</u>	<u>Lineal Feet</u>
Weyman St. - Both Sides	2,245
McKeen St. - Both Sides	2,845
Fletcher Ct. - Both Sides	520
Mansfield St. - Existing to Dead End - Both Sides	817
Tilley Dr. - Existing to Flemming Rd. - South Side (Partial)	602
- Both Sides (Partial)	
Wetmore Rd. - Built Up Area - Both Sides	1,487
Chandler Dr. - Both Sides	1,286
Bliss St. - Both Sides	2,095
Doyle Ct. - Both Sides	1,336
Colebrook Ct. - Both Sides	1,175
Smythe St. - Prospect St. to T.C.H. - Both Sides	727
*Lawrence Cres. - Both Sides	1,432
*Lilac Cres. - Both Sides	3,513
*Longwood Dr. - Fulton Ave. to Lilac Cres. (East) - Both Sides	4,100
*Park St. - Both Sides	1,008
*MacDonald Ave. - Both Sides	1,850
*Wallace Ave. - Both Sides	2,495
*Hawkins St. - Royal Rd. to Ebony Dr. - Both Sides	2,755
*Brookside Dr. - Westview St. to Hawkins St. (Both Sides)	
--Hawkins St. to C.P.R. (West Side)	3,024
Alder Ave. - Both Sides	945
Hartt St. - Both Sides	2,415
Jewett St. - Hartt St. to Berwick St. - Both Sides	420
Berwick St. - Both Sides	1,110
Kent St. - Berwick St. to Hartt St. - Both Sides	700
William St. - Lombardi Lane to Calder Ave. - Both Sides	2,535
Haines Cres. - Calder Ave. to William St. - Both Sides	975
Westwood Dr. - Both Sides	1,719
Birchcroft Dr. - Both Sides	1,381
Hummingbird St. - Both Sides	2,193
Robin Dr. - Both Sides	1,430
Calder Ave. - Both Sides	800
Elgin St. - Both Sides	1,320
** Lincoln Rd. - Both Sides	13,290
(From #1090 to #1790 Lincoln Rd.)	
TOTAL	<u>66,545</u>

66,545 Lineal Feet = 12.60 Miles

* Constructed by Diamond Construction (1961) Limited
 ** Constructed by Seaboard Services Limited

All the above Curb and Gutter was constructed by City Crews except those denoted by Asterisks.

All the concrete poured by City Crews was purchased ready-mix from Gordon's Ready-Mix Ltd. at a price of \$27.75 per cubic yard. Diamond Construction (1961) Ltd. and Seaboard Services Ltd. were responsible for obtaining their own concrete.

The unit cost of one lineal foot of curb and gutter placed by City Crews, found by dividing the total length laid, which equalled 33,078 lineal feet into the total cost of \$180,470.40 was \$5.46 per lineal foot.

The unit cost of one lineal foot of curbing placed by Diamond Construction (1961) Limited, found by dividing the total length laid, which equalled 21,122 lineal feet into the total cost of \$236,771.29 was \$11.21 per lineal foot.

The unit cost of one lineal foot of curbing placed by Seaboard Services Ltd., found by dividing the total length laid, which equalled 13,290 lineal feet into the total cost of \$127,651.53 was \$9.61 per lineal foot.

The topsoiling of boulevards is included in the above costs as well as design and supervision costs.

Topsoiling Costs:

Diamond Construction (1961) Limited topsoiled all boulevards on streets which they constructed curb and gutter. All other boulevards were topsoiled by City Crews, with the exception of Lincoln Road where no topsoiling was undertaken.

Diamond Construction (1961) Limited:

Total Cost of Topsoiling, Fertilizer, Etc.	\$ 24,510.60
Lineal Feet of Curb Constructed	21,122
Cost/Foot (Topsoiling)	\$ 1.16
Therefore, Cost/Foot of Curbing Only	\$ 9.19

City Crews:

Labour	\$ 18,217.39
Hired Trucks & Machinery	-
City Machinery Charges	-
Materials	<u>13,802.00</u>
TOTAL	<u>\$ 32,019.39</u>

Total Cost of Curbing, including Topsoiling	\$ 180,470.40
Cost of Topsoiling	<u>32,019.39</u>
TOTAL COST OF CURBING	<u>\$ 148,451.01</u>

Cost/Lin.Ft. in Place = $\frac{\$ 148,451.01}{33,078}$ = \$ 4.49

Cost/Lin.Ft. of Topsoiling = $\frac{\$ 32,019.39}{33,078}$ = \$ 0.97

Labour cost of constructing 1 Lineal Foot of Curb and Gutter, minus Topsoiling was $\frac{\$ 91,770.76}{33,078}$ = \$ 2.77

CAPITAL ACCOUNT PAVING

In 1976, Diamond Construction (1961) Ltd., was awarded a contract to lay pavement and resurface a number of City Streets.

The material cost amounted to \$397,953.93 and was made up as follows: -

Diamond Construction (1961) Limited

95.30 Tons 1/2" Minus Asphalt @ \$15.50 per ton	\$ 1,477.15
7,720.00 Tons 1/2" Dense Mix Asphalt @ \$16.00 per ton	123,520.00
12,476.25 Tons 3/4" Dense Mix Asphalt @ \$15.00 per ton	187,143.75
2,424.65 Tons 3/8" Minus Asphalt @ \$18.00 per ton	43,643.70
4,000 Gallons of RS1 Tack Coat @ \$0.50 per gallon	2,000.00
25,557 Gallons of N.B. Primer @ \$0.50 per gallon	12,778.50

Gorman Construction Co. Ltd.

973.10 Tons 1/2" Asphalt @ \$15.50 per ton	15,083.05
69.80 Tons Sand Seal @ \$16.50 per ton	1,151.70

Miscellaneous -- Journal Vouchers

(Brick, Cement, Sand, Rock).....	<u>11,156.08</u>
TOTAL	<u>\$397,953.93</u>

The street preparatory work, other than the laying in place of the pre-mixed material, was done by regular City Crews at an expenditure of \$48,746.98 made up as follows: -

City Labour	\$ 35,268.98
City Machinery	<u>13,478.00</u>
TOTAL	<u>\$ 48,746.98</u>

The total net expenditure under this heading amounted to \$301,898.58 and was made up as follows:

City Labour	\$ 35,268.98
City Machinery	<u>13,478.00</u>
Diamond Construction (1961) Ltd.	370,563.10
Gorman Construction Co. Ltd.	16,234.75
Miscellaneous	<u>11,156.08</u>
GROSS EXPENDITURE	\$ 446,700.91
LESS CREDIT	<u>144,802.33</u>
NET EXPENDITURE	<u>\$ 301,898.58</u>

✓ The above credit of \$144,802.33 was from the Province of New Brunswick regarding the resurfacing of Lincoln Road.

The paving program required the supply and placement of the following grades of materials:

- 1) New Pavement - 3/4" Dense Mix @ \$15.00/Ton in Place
- 2) Recap 1/2" Minus @ \$16.00/Ton in Place
- 3) Surface Seal 3/8". Minus @ \$18.00/Ton in Place

1) New Pavement

The following streets were paved with 3/4" Dense Mix by Diamond Construction (1961) Ltd. in 1976.

<u>Location</u>	<u>Lineal Feet</u>
Weyman St.	1,109
McKeen St.	998
Fletcher Ct.	348
Mansfield St. - Existing to Dead End	301
Tilley Dr. - Existing to Flemming Rd.	908
Wetmore Rd. - Built Up Area	829
Chandler Dr.	781
Bliss St.	1,209
Doyle Ct.	665
Colebrook Ct.	580
*Elgin St.	602
Lawrence Cres.	671
Lilac Cres.	1,869
Longwood Dr. - Fulton Ave. to Lilac Cres. (East)	1,959
Park St.	591
MacDonald Ave.	935
Wallace Ave.	1,262
Hawkins St. - Royal Rd. to Ebony Dr.	1,441
Alder Ave.	496
Hartt St.	898
Jewett St. - Hartt St. to Berwick St.	380
Berwick St.	581
Kent St. - Berwick St. to Hartt St.	290
William St. - Lombardi Lane to Calder Ave.	1,320
Calder Ave.	480
Haines Cres. - Calder Ave. to William St.	380
Westwood Dr.	1,061
Robin Dr.	623
Birchcroft Dr.	660
Hummingbird St.	1,088
TOTAL	<u>25,315</u>

25,315 Lineal Feet = 4.79 Miles

* Used 1/2" Minus Asphalt (Materials Included Under 1/2" Recap)

For the above, the following materials were used:

25,557 Gallons N.B. Prime @ \$0.50 per Gallon	\$ 12,778.50
12,476.25 Tons 3/4" Hot Mix Asphalt @ \$15.00 per Ton	<u>187,143.75</u>
TOTAL	<u>\$199,922.25</u>

The street grading and preparatory work was done by regular City Crews.

2) Recap 1/2" Minus

The following streets were recapped by Diamond Construction (1961) Limited in 1976:

<u>Location</u>	<u>Lineal Feet</u>
Campbell St. - Carleton St. to York St.	455
Queen Hotel Alley (Camperdown Lane)	448
Barker House Alley	448
Lincoln Rd. - C.N.R. Crossing to Nr. Glasier Rd.	10,725
Brookside Dr. - Westview St. to C.P.R. Tracks	<u>1,950</u>
TOTAL	<u>14,026</u>

14,026 Lineal Feet = 2.66 Miles

The following material was used for the above streets:

7,720 Tons 1/2" Minus Asphalt @ \$16.00 per Ton	\$ 123,520.00
1,068.40 Tons 1/2" Asphalt @ \$15.50 per Ton	<u>16,560.20</u>
TOTAL	\$ <u>140,080.20</u>

3) Surface Seal -- 3/8" Minus

The following City Streets were surface sealed by Diamond Construction (1961) Limited under "Capital Account" with 3/8" Minus Hot Mix Asphalt:

<u>Location</u>	<u>Lineal Feet</u>
Surrey Cres.	1,500
Limerick Rd. - Hearne St. to McNair Dr.	780
Ayres St.	871
Cameron Ct.	1,151
Colonial Heights	2,149
Regent St. - Prospect to T.C.H. Overpass & Overpass to 300 feet South	690
Smythe St. - Prospect St. to T.C.H.	<u>364</u>
TOTAL	<u>7,505</u>

7,505 Lineal Feet = 1.42 Miles

For the above streets, the following materials were used:

69.80 Tons Sand Seal @ \$16.50 per Ton	\$ 1,151.70
2,424.65 Tons 3/8" Minus Asphalt @ \$18.00 per Ton	43,643.70
* ^{1/4} ,000 Gallons Tack Coat @ \$0.50 per Gallon	<u>2,000.00</u>
TOTAL	<u>\$ 46,795.40</u>

* Portions were used in the Maintenance Sealing Program.

CAPITAL ACCOUNT DOMESTIC SEWER

GROSS EXPENDITURE	\$ 199,823.14
LESS CREDIT	<u>182,185.97</u>
NET EXPENDITURE	\$ <u>17,637.17</u>

Included in the Gross Expenditure of \$199,823.14 is the amount of holdback from jobs completed in 1976 to be paid in 1977 accounts.

The above credit is made up as follows:

Journal Vouchers (materials paid for by Capital Account Domestic Sewer & Charged to other City Departments)	\$ 48,612.88
Work done and materials sold to Private Parties ...	11,206.41
IRA Young & Associates)	13,093.51
Topmar Housing & Const. Ltd.)	105.00
New Brunswick Housing Corp.) Local	25,829.71
Hill Brothers Realty Ltd.) Improvement	9,191.22
New Brunswick Housing Corp.) Charges	41,002.84
Hill Brothers Realty Ltd.)	11,380.45
Brownco Const. Co. Ltd.)	3,575.01
Chippins Ltd.)	17,968.20
New Brunswick Housing Corp.)	220.74
TOTAL CREDITS	\$ <u>182,185.97</u>

Domestic Sewer Mains were constructed at the following locations:

Location	LINEAL FEET						
	8" A.C.	10" A.C.	15" Conc.	16" A.C.	6" D.I.F.M.	8" D.I.	12" D.I.
Abbott Ct.	651						
**Vanier Subdivision	1,378	80					
Gulliver Dr.	547						
Kingsley Ct.	173						
N.B.H.C. - Marysville	1,715						
N.B.H.C. - Nashwaaksis	3,403						
Regent St. - South of TCH	76				60		
*Burpee St. Lift Station				48			
*Nashwaaksis 128-13			67				
*Lincoln Rd. #9	1,432				1,393		
Wilkins Subdivision	303						
*Power Line Rt.-of-Way	939						
*Nashwaaksis Siphon	86					324	5
TOTALS	10,703	80	67	48	1,453	324	5

* See Capital Service Development Projects for Costs.

** Incomplete in 1976.

Total Lineal Feet of Main Installed in 1976 = 12,680 = 2.41 Miles

The actual cost of installing the above listed Domestic Sewer Mains excluding the Capital Service Development Projects (C.S.D.P.) was as follows:

Location	Payment to Contractors Including Reserve for Holdback	City Labour & Machinery	Materials	Total
Abbott Ct.	\$ 7,398.60	\$ 502.69	\$ 3,479.16	\$ 11,380.45
Vanier Subdivision (Incomplete)	9,032.61	1,431.81	8,802.78	19,267.20
Gulliver Dr.	6,043.31	381.36	2,766.55	9,191.22
Kingsley Ct.	2,275.43	170.36	1,129.22	3,575.01
N.B.H.C. - Marysville	15,147.50	896.80	9,785.41	25,829.71
Regent St. - South of TCH	11,802.00	1,731.56	1,514.17	15,047.73
N.B.H.C. - Nashwaaksis	24,052.80	1,772.25	15,177.79	41,002.84
TOTALS	\$75,752.25	\$6,886.83	\$42,655.08	\$125,294.16

The above costs include any holdback payments, thus showing the actual cost of construction.

The following is the cost of laying pipe per foot including manholes by Contractors in 1976:

Location	8" A.C.
Abbott Ct.	\$ 17.48
Gulliver Dr.	16.80
Kingsley Ct.	20.66
N.B.H.C. - Marysville	15.06
N.B.H.C. - Nashwaaksis	12.05

All the above Domestic Sewer Mains were laid in a common trench with the water main.

Materials in stock as of December 31, 1976:

3,406 Lin.Ft. of 8" A.C. @ \$2.38 per foot	\$ 8,106.28
507 Lin.Ft. of 10" A.C. @ \$2.33 per foot	1,181.31
6 - 8" St. Thru Special "B" Sections @ \$126.45 each	758.70
29 - 10" St. Thru Special "B" Sections @ \$104.51 each	3,030.79
12 - 8" 3-Way-Rt. Special "B" Sections @ \$126.45 each	1,517.40
14 - "A" Sections @ \$47.81 each	669.34
9 - "B" Sections @ \$70.74 each	636.66
28 - "C" Sections @ \$127.55 each	3,571.40
61 - "D" Sections @ \$24.45 each	1,491.45
53 - Flat Top "Dx" Sections @ \$22.36 each	1,185.08
TOTAL	\$ 22,148.41

CAPITAL ACCOUNT SURFACE SEWER

GROSS EXPENDITURE (Lincoln Rd. Project) ..	\$ 40,145.74
GROSS EXPENDITURE (Other Projects)	352,397.77
LESS TOTAL CREDITS	<u>412,686.70</u>
NET CREDIT	\$ <u>20,143.19</u>

The above total credit is made up as follows:

Province of New Brunswick -- 1976 Payments for 1975 Improvements to Designated Routes	\$ 49,408.81
Province of New Brunswick -- 1976 Improvements to Designated Routes	27,546.14
Journal Vouchers (Materials paid for by Capital Account Surface Sewer & charged to other City Departments)	142,909.05
Work Done & Materials sold to Private Parties	4,526.58
Topmar Housing & Const. Ltd.)	27.60
New Brunswick Housing Corp.)	41,350.09
Hill Brothers Realty Ltd.) Local	10,117.62
New Brunswick Housing Corp.) . Improvement	57,866.01
Hill Brothers Realty Ltd.) Charges	17,566.24
Brawnco Construction Ltd.)	13,405.10
Chippins Ltd.)	39,974.00
New Brunswick Housing Corp.)	6,596.31
Government of Canada - Rebate on Sales Tax on brick	1,393.15
TOTAL CREDITS	\$ <u>412,686.70</u>

Under this heading Surface Sewer Mains and Laterals were constructed at the following locations:

LINEAL FEET -- CONCRETE PIPE

Location	10"	12"	15"	18"	24"	36"	36" Corr.	30"
Abbott Ct.	143	275	232					
Vanier Subdivision	102	294	201	770	389	243		
Gulliver Dr.	28	247	304					
Kingsley Ct.	92	40	461					
N.B.H.C. - Emmerson St.		395	91					
N.B.H.C. - Marysville	138	757	633	379				
N.B.H.C. - Nashwaaksis	244	2,580	756					
*Wilkins Subdivision						80		
Hartt St.		48						
Prospect St.		238						
*Nashwaaksis - 128-14	35	35		64				
*Lincoln #8	264	439						
*Nashwaaksis - 128-13	808	3,206	923	796	1,887			
*Silverwood	400	1,556	276	310				
*Hanson's Pit							112	40
*Jewett's Datsun	36							
*Charles Ave.	54		389					
*Lower St. Marys	75	361		282				
*Arlington Easement		8		432				
*Edgewood Dr.		95	41	327				
*Lincoln #9				182				
*Power Line Rt.-of-Way								
*Canada St.								
MacLaren Ave.	676	240						
Tilley Dr. Park								
*Douglas Area						672		
TOTALS	3,095	10,814	4,397	3,542	3,028	355	80	88

* See Capital Service Development Projects for Costs

TOTAL LINEAL FEET OF MAIN INSTALLED IN 1976 = 25,399 = 4.81 Miles

An itemized account was kept for the installing of the above Surface Sewers at the following locations (excluding the C.S.D.P. - Capital Service Development Projects):

Location	Payment To Contractors Including Reserve For Holdback	City Labour & Machinery	Material	Total
Abbott Ct.	\$11,468.00	\$ 835.53	\$ 5,262.71	\$ 17,566.24
Vanier Subdivision (Incomplete)	19,211.78	3,460.08	19,917.84	42,589.70
Gulliver Dr.	5,696.67	668.93	3,752.02	10,117.62
Kingsley Ct.	7,696.13	726.01	4,982.96	13,405.10
N.B.H.C. - Emmerson St. (Incomplete)	3,129.19	374.61	4,291.31	7,795.11
N.B.H.C. - Marysville	22,156.00	1,429.47	17,764.62	41,350.09
N.B.H.C. - Nashwaaksis	29,861.00	2,393.44	25,611.57	57,866.01
TOTALS	\$99,218.77	\$9,888.07	\$81,583.03	\$190,689.87

Following is the cost of laying various sizes of pipe including Catch Basins and Manholes in Place:

COST PER LINEAL FOOT

Location	10"	12"	15"	18"
Abbott Ct.	\$ 22.04	\$ 23.55	\$ 24.66	\$
Gulliver Dr.	15.03	16.90	18.17	
Kingsley Ct.	20.75	22.26	23.37	
N.B.H.C. - Marysville	19.28	21.04	22.31	22.78
N.B.H.C. - Nashwaaksis	14.43	16.57	17.05	
Prospect St.		10.92		
MacLaren Ave.	13.69			

Stock on hand December 31, 1976:

488 Lin.Ft. of 10" Concrete @ \$2.70 per foot	\$ 1,317.60
1,608 Lin.Ft. of 12" Concrete @ \$4.26 per foot	6,850.08
256 Lin.Ft. of 15" Concrete @ \$5.57 per foot	1,425.92
760 Lin.Ft. of 18" Concrete @ \$6.04 per foot	4,590.40
288 Lin.Ft. of 24" Concrete @ \$10.87 per foot	3,130.56
144 Lin.Ft. of 30" Concrete @ \$13.83 per foot	1,991.52
120 Lin.Ft. of 36" Concrete @ \$17.70 per foot	2,124.00
TOTALS	<u>\$ 21,430.08</u>

CAPITAL ACCOUNT WATER

GROSS EXPENDITURE	\$ 723,433.51
LESS CREDITS	<u>260,734.28</u>
NET EXPENDITURE	<u>\$ 462,699.23</u>

The above credit is made up as follows:

Journal Vouchers (Materials Paid for by Capital Account Water & Charged to other City Departments)	\$ 92,489.34
Work done & materials sold to Private Parties	11,079.84
Ira. Young & Assoc.)	9,346.47
Topmar Housing Ltd.) Local.	3,189.09
New Brunswick Housing Corp.) Improve-	39,750.68
Hill Brothers Realty Ltd.) ment ...	11,581.35
New Brunswick Housing Corp.) Charges.	66,676.48
Hill Brothers Realty Ltd.)	13,268.28
Brawnco Construction Co. Ltd.)	3,824.27
Chippins Ltd.)	1,754.98
New Brunswick Housing Corp.)	1,707.61
Neighbourhood Improvement Program Regarding Work on St. John St.	4,633.10
Canron Ltd. - Invoice & Tax Corrections	212.33
Gorman Cain Ltd. - Repairs to Hydrant .	235.80
Hawkins Trucking Ltd. - Damaged Hydrant	611.46
M.R.B. Contractors - Relocating Hydrant	373.20
TOTAL CREDITS	<u>\$ 260,734.28</u>

Water Main Installations were made at the following locations in 1976:

Location	LINEAL FEET					
	6"	8"	10"	12"	14"	16"
Abbott Ct.	684					
*Vanier Subdivision - I.P.L.A.	18	1,326	95			
Gulliver Dr.	18	580				
Kingsley Ct.	173					
Lapointe Area - Foster St.	78					
Montgomery Res. Ext.	9	60		324		
N.B.H.C. - Marysville	311	1,547				
N.B.H.C. - Nashwaaksis	1,240	2,352				
Regent St. - South of T.C.H.	20	17		80		
St. John St.	281					
Winslow St.	1,039					
**Nashwaaksis 128-13	640	303				
**Silverwood Supply Line	65	3,094				
**Nashwaaksis Power Line						
Rt.-of-Way	15	864		4,585		
**Killarney Rd. 75606	430	80				341
**Lincoln #9	90	15		1,396		
**Killarney Rd. 75605				179	289	
TOTALS	5,111	10,238	95	6,564	289	341

* See Industrial Park Land Account for Costs

** See Capital Service Development Projects for Costs

TOTAL LINEAL FEET OF MAIN INSTALLED IN 1976 = 22,638 = 4.29 Miles

An itemized account was kept for the installing of Water Mains at the following locations and expenditures were made up as follows:
(Does not include the Capital Service Development Projects -- C.S.D.P.)

Location	Payments to Contractors Including Reserve for Holdbacks	City Labour & Machinery	Materials	Total
Abbott Ct.	\$ 7,164.00	\$ 404.44	\$ 5,699.84	\$ 13,268.28
Vanier Subdivision - I.P.L.A.	7,827.48	472.16	16,056.47	24,356.11
Gulliver Dr.	5,386.54	268.67	5,926.14	11,581.35
Kingsley Ct.	1,961.93	173.31	1,689.03	3,824.27
Lapointe Area - Foster St.	1,133.50	266.63	1,788.96	3,189.09
N.B.H.C. - Marysville	16,537.00	944.56	22,269.12	39,750.68
N.B.H.C. - Nashwaaksis	26,690.80	1,496.13	38,489.55	66,676.48
St. John St. - Winslow St.	19,314.00	6,089.22	16,441.58	41,844.80
Regent St. - South of T.C.H.	6,680.14	781.86	3,897.70	11,359.70
Vanier Subdivision	1,275.00	528.58	1,226.40	3,029.98
N.B.H.C. - Emmerson St.	-	715.47	992.14	1,707.61
TOTALS	\$93,970.39	\$12,141.03	\$114,476.93	\$220,588.35

The following shows the cost per foot for laying various sizes of pipe at locations shown:

Location	COST PER LINEAL FOOT	
	6"	8"
Abbott Ct.	\$ 19.40	\$
Gulliver Dr.	17.17	19.43
Kingsley Ct.	22.11	
N.B.H.C. - Marysville	19.51	21.77
N.B.H.C. - Nashwaaksis	18.27	20.53
St. John St. - Winslow St.	33.33	
Silverwood Supply Line	17.16	19.42

Total Inventory Value as of December 31, 1976 \$ 94,210.24

Cost of Well Water Supply Todate (South Side)

Total Cost to December 31, 1975	\$ 885,352.78
<u>Plus: Expenditures for 1976</u>	<u>375,768.92</u>
TOTAL COST TO DEC. 31/76	<u>\$ 1,261,121.70</u>

The expenditures for 1976 were for the following:

Water Exploration (Fredericton South)	\$ 9,750.00
Montgomery St. Storage Reservoir	250,104.16
Smythe St. Reservoir Extension	114,922.46
Woodstock Rd. - Main Pumping Stn. & Well	<u>992.30</u>
	\$ <u>375,768.92</u>

Fredericton North Water Supply Including Wells, Reservoirs, Etc.

Total Cost to December 31, 1975	\$ 975,560.62
<u>Plus: Expenditures for 1976</u>	<u>83,625.15</u>
TOTAL COST TO DEC. 31/76	<u>\$ 1,059,185.77</u>

The expenditures for 1976 were for the following:

Marysville Reservoir	\$ 25,029.13
Killarney Rd. Reservoir	42,041.26
Water Exploration (Fredericton North)	<u>16,554.76</u>
	\$ <u>83,625.15</u>

Cost of Developing Water Supply for Silverwood Todate

Total Cost to December 31, 1975	\$ 60,281.30
<u>Plus: Expenditures for 1976</u>	<u>114,996.93</u>
TOTAL COST TO DEC. 31/76	<u>\$ 175,278.23</u>

The expenditures for 1976 were for the following:

Silverwood Supply Line	\$ 72,306.04
Water Exploration	42,690.89
	\$ <u>114,996.93</u>

CAPITAL SERVICE DEVELOPMENT PROJECTS

In 1974, projects were begun to up-grade and extend services in the newly amalgamated areas. These projects are known as Capital Service Development Projects -- C.S.D.P. In 1976 the Provincial Government allotted the City of Fredericton a stimulation grant of \$1,000,000. to be applied to water and domestic sewer services only. Stimulation Grants for 1974 and 1975 were \$1,500,000. and \$1,250,000. respectively.

Following is a summary of C.S.D.P. Costs from 1974 to 1976:
GROSS EXPENDITURES

Service	1974	1975	1976	Totals
Water	\$ 563,987.05	\$1,570,278.37	\$ 827,814.68	\$2,962,080.10
Domestic Sewer	169,761.70	1,051,072.99	468,296.19	1,689,130.88
Storm Sewer	494,027.15	792,489.97	588,338.30	1,874,855.42
Service Depot & Equipment	13,873.23	366,636.81	556,806.34	937,316.38
Equipment Acquisition	479,053.44	165,149.47	189,961.50	834,164.41
Solid Waste Disposal	3,153.34	8,725.42	15,121.10	26,999.86
TOTALS	\$1,723,855.91	\$3,954,353.03	\$2,646,338.11	\$8,324,547.05

Projects whether commenced or completed in 1976, will be dealt with individually below.

NOTE: Expenditures will be dealt with only. For any projects which involved pipe laying, the length and size of pipe laid will be found in tables either under "Capital Water", "Capital Domestic Sewer", or "Capital Storm Sewer".

(1) C.S.D.P. - Marysville Reservoir:

In 1974, work commenced on a new 625,000 I.G. Reservoir to increase the storage capacity for the Marysville Area. This work was finalized in 1976.

1976 GROSS EXPENDITURE	\$ 25,029.13
LESS CREDITS	-
1976 NET EXPENDITURE	25,029.13
1975 NET EXPENDITURE	89,605.51
1974 NET EXPENDITURE	<u>148,419.45</u>
TOTAL NET EXPENDITURE FOR PROJECT TODATE	\$ 263,054.09

(2) C.S.D.P. - Storm Sewer - Nashwaaksis - 128-12

1976 NET EXPENDITURE	\$ 5,192.07
1975 NET EXPENDITURE	<u>571.50</u>
TOTAL NET EXPENDITURE FOR PROJECT TODATE	\$ 5,763.57

The above expenditure was for professional services regarding 1976 Storm Sewer Construction.

(3) C.S.D.P. - Water - MacDonald Ave. & Park St. - 128-10

This project included the complete upgrading of the water mains on MacDonald Ave. & Park St. including the connection of house services to the new mains. The 1976 Expenditure was for holdback.

1976 NET EXPENDITURE	\$ 727.44
1975 NET EXPENDITURE	<u>88,393.51</u>
TOTAL NET EXPENDITURE FOR PROJECT TODATE	\$ <u>89,120.95</u>

(4) C.S.D.P. - Storm Sewer - MacDonald Ave., Park St., Longwood Dr., Lilac Cres., & Lawrence Cres. - 128-10

This project involved the installation of storm sewer mains and connection of storm sewer house laterals for the above streets. The 1976 Expenditure was for holdback.

1976 NET EXPENDITURE	\$ 3,308.31
1975 NET EXPENDITURE	<u>444,678.70</u>
TOTAL NET EXPENDITURE FOR PROJECT TODATE	\$ <u>447,987.01</u>

(5) C.S.D.P. - Domestic Sewer - Burpee St.

This project involved the relocation and increasing of size of a portion of line to the Lift Station.

1976 NET EXPENDITURE	\$ <u>1,043.35</u>
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(6) C.S.D.P. - Storm Sewer - Wilkins Property, Sunset Drive

This project involved the extension of the 24" Concrete outfall on the Wilkins Property near the Airport Road.

1976 NET EXPENDITURE	\$ <u>900.72</u>
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(7) C.S.D.P. - Water - Bird Ave., & Teak Dr. - 128-13

This project included the up-grading of water mains on Bird Ave. and Teak Dr., including the connection of house services to the new mains and also the construction of manholes around gate valves, formerly protected by standpipe, on various streets in the Nashwaaksis Area.

GROSS EXPENDITURE	\$ 47,712.17
LESS CREDITS	<u>230.89</u>
1976 NET EXPENDITURE	\$ <u>47,481.28</u>

(8) C.S.D.P. - Storm Sewer - Cedar Ave., Bird Ave., Teak Dr., Hilltop Dr., Willow Ave., Lynn St., Douglas Ave., Brookside Dr. - 128-13

This project involved the installation of storm sewer mains and connection of storm sewer house laterals for the above streets, the relocation of Friels Creek in the Douglas Ave. area and the construction of a storm sewer outfall on Lynn St.

GROSS EXPENDITURE	\$ 418,648.41
LESS CREDITS	<u>874.86</u>
1976 NET EXPENDITURE	\$ <u>417,773.55</u>

(9) C.S.D.P. - Domestic Sewer - Douglas Ave. - 128-13

This project involved the installation of 15" Concrete Domestic Sewer Pipe under the C.P.R. Crossing on Douglas Ave.

GROSS EXPENDITURE	\$ 3,003.32
LESS CREDITS	<u>25.65</u>
1976 NET EXPENDITURE	\$ <u>2,977.67</u>

(10) C.S.D.P. - Storm Sewer - Silverwood

This project involved the installation of storm sewer mains on Mountain Dr., Islandview Dr., Arlington St., Oriole Ct., Silverwood Rise and Silverwood Ct. including the connection of any existing storm sewer house drains.

GROSS EXPENDITURE	\$ 60,557.08
LESS CREDITS	<u>1,277.38</u>
1976 NET EXPENDITURE	\$ <u>59,279.70</u>

(11) C.S.D.P. - Water - Silverwood

This project involved the construction of manholes around gate valves, formerly protected by standpipe, on various Silverwood Streets.

1976 NET EXPENDITURE	\$ <u>42,690.89</u>
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(12) C.S.D.P. - Water - Silverwood Supply Line

This project involved the installation of an 8" water supply main from the new well location to the Silverwood Reservoir.

1976 NET EXPENDITURE	\$ <u>72,306.04</u>
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(13) C.S.D.P. - Domestic Sewer - Killarney Rd. - 75605

This project involved the installation of domestic sewer mains from existing to the end of gravity grade on Killarney Rd. The 1976 Expenditure consisted of holdback and professional service payments.

1976 NET EXPENDITURE	\$ 15,883.32
1975 NET EXPENDITURE	<u>110,984.04</u>
TOTAL NET EXPENDITURE OF PROJECT TODATE	\$ <u>126,867.36</u>

(14) C.S.D.P. - Water - Killarney Rd. - 75605 & 75606

This project involved the installation of water mains from the former City of Fredericton line to the new reservoir near Killarney Lake. The 1976 Expenditure was for progress, holdback, and professional service payments.

1976 NET EXPENDITURE	\$ 255,522.50
1975 NET EXPENDITURE	<u>516,738.60</u>
TOTAL NET EXPENDITURE OF PROJECT TODATE	\$ <u>772,261.10</u>

(15) C.S.D.P. - Water - Killarney Rd. Reservoir - 75607

This project involved the construction of a new reservoir near Killarney Lake to service Killarney Rd. and the second level supply system, North Fredericton. The 1976 Expenditure was for progress, holdback, and professional service payments.

1976 NET EXPENDITURE	\$ 42,041.26
1975 NET EXPENDITURE	<u>219,523.64</u>
TOTAL NET EXPENDITURE OF PROJECT TODATE	<u>\$ 261,564.90</u>

(16) C.S.D.P. - Water - Power Line Right-of-Way - 75608

This project involved the extension of water mains from Killarney Rd. to service the new Fredericton North High School and the Nashwaaksis Second Level Water System. Also, included a short section of domestic sewer for connection of high school system.

1976 NET EXPENDITURE	\$ 222,352.66
1975 NET EXPENDITURE	<u>4,936.75</u>
TOTAL NET EXPENDITURE OF PROJECT TODATE	<u>\$ 227,289.41</u>

(17) C.S.D.P. - Water - Killarney Rd. Service Connections - 76607

This project involved the installation of service lines from the main lines to the property lines on Killarney Rd.

1976 NET EXPENDITURE	\$ <u>38,925.39</u>
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(18) C.S.D.P. - Storm Sewer - Douglas Area

This project involved the installation of 24" Conc. pipe to alleviate the build up of water in the City Construction pit, which had caused flooding on the Aden Sullivan property.

1976 NET EXPENDITURE	\$ <u>22,456.38</u>
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(19) C.S.D.P. - Domestic Sewer - Lincoln Rd.

In 1975, work commenced to provide Lincoln Rd. from near Draco Rd. to Glasier Rd. with domestic sewer service including mains, services, and lift stations. This work continued in 1976 as well as services were extended to a portion of Glasier Rd.

GROSS EXPENDITURE	\$ 374,998.72
LESS CREDITS	<u>815.85</u>
1976 NET EXPENDITURE	374,182.87
1975 NET EXPENDITURE	717,558.67
1974 NET EXPENDITURE	<u>45,591.47</u>
TOTAL NET EXPENDITURE OF PROJECT TODATE	<u>\$ 1,137,333.01</u>

(20) C.S.D.P. - Water - Lincoln Rd.

The installation of water mains and water services on Lincoln Rd. from the Research Station to Glasier Rd. was begun in 1975. In 1976 this project was continued as well as services were extended to a portion of Glasier Rd.

GROSS EXPENDITURE	\$ 64,394.95
LESS CREDITS	<u>557.97</u>
1976 NET EXPENDITURE	63,836.98
1975 NET EXPENDITURE	372,077.90
1974 NET EXPENDITURE	<u>191,390.23</u>
TOTAL NET EXPENDITURE OF PROJECT TODATE	\$ <u>627,305.11</u>

(21) C.S.D.P. - Water - Woodstock Rd. - Garden Creek Area

This project involved the continuation of the design of water mains and services, pumping station and reservoir to service the Woodstock Rd. - Garden Creek Area from the existing services on the Woodstock Rd. to Montieth Dr. on the Trans Canada Highway.

1976 NET EXPENDITURE	\$ 11,953.64
1975 NET EXPENDITURE	<u>8,014.21</u>
TOTAL NET EXPENDITURE OF PROJECT TODATE	\$ <u>19,967.85</u>

(22) C.S.D.P. - Domestic Sewer - Woodstock Rd. - Garden Creek Area

This project involved the continuation of the design of domestic sewer mains and services, lift stations, etc. for the Woodstock Rd. - Garden Creek Area from the existing services on the Woodstock Rd. to Montieth Dr. on the Trans Canada Highway.

1976 NET EXPENDITURE	\$ 46,679.97
1975 NET EXPENDITURE	96,123.43
1974 NET EXPENDITURE	<u>21,924.39</u>
TOTAL NET EXPENDITURE OF PROJECT TODATE	\$ <u>164,727.79</u>

(23) C.S.D.P. - Domestic Sewer - Nashwaaksis Stream Siphon

This project involved work to increase the capacity of the existing siphon across the Nashwaaksis Stream.

1976 NET EXPENDITURE	\$ 26,687.51
1975 NET EXPENDITURE	<u>3,700.77</u>
TOTAL NET EXPENDITURE OF PROJECT TODATE	\$ <u>30,388.28</u>

(24) C.S.D.P. - Water - Parkview Gardens

This project involved the construction of manholes around gate valves, formerly protected by standpipe, on streets which were included in the curb and gutter program.

1976 NET EXPENDITURE	\$ <u>3,104.95</u>
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(25) C.S.D.P. - Storm Sewer - Hanson's Pit Area

The purpose of this project was to extend the outfall at Hanson's Pit beyond the Pollution Control Collector system to prevent erosion of soil away from the collector mains.

1976 EXPENDITURE \$ 8,379.08

(26) C.S.D.P. - Storm Sewer - Carmen Ave. & Colwell Dr.

The expenditure for this project was for design and survey work regarding future storm drainage system.

1976 EXPENDITURE \$ 2,639.25

(27) C.S.D.P. - Storm Sewer - Lower St. Marys

This project involved the installation of storm sewer from the St. John River to Ross Terrace (by easement) along a section of Ross Terrace to Watson Dr. and along Watson Dr.

1976 EXPENDITURE \$ 18,752.19

(28) C.S.D.P. - Storm Sewer - Charles Ave.

This project involved the installation of storm sewer on Charles Ave. and the construction of a headwall at the Nashwaak River.

1976 EXPENDITURE \$ 12,570.94

(29) C.S.D.P. - Storm Sewer - Edgewood Dr.

This project involved the installation of storm sewer on a portion of Edgewood Dr. beginning at Brookside Dr.

1976 EXPENDITURE \$ 10,309.09

(30) C.S.D.P. - Storm Sewer - Arlington St. Easement

This project involved the installation of storm sewer on an easement off Arlington St. to act as a reliever and help prevent excessive flows of water in the Mooers Drive area of Silverwood.

1976 EXPENDITURE \$ 16,510.11

(31) C.S.D.P. - Storm Sewer - Canada St.

This project involved the construction of a 36" corrugated outfall sewer in the area of 412 Canada St.

1976 EXPENDITURE \$ 448.05

(32) C.S.D.P. - Storm Sewer - Barkers Pt. (Jewett's Datsun)

Due to complaints of oil being found in well water of residents near Jewett's Datsun, an oil interceptor was constructed on the storm sewer system as a preventative measure.

1976 EXPENDITURE \$ 895.42

(33) C.S.D.P. - Service Depot - North Fredericton

In 1975, construction began on a new service depot on Killarney Rd. for North Fredericton. This construction was finalized in 1976. Included in the 1976 Expenditure is the expenditures for various pieces of equipment for the depot.

GROSS EXPENDITURE	\$ 528,138.41
LESS CREDITS	<u>39.90</u>
1976 NET EXPENDITURE	528,098.51
1975 NET EXPENDITURE	366,636.81
1974 NET EXPENDITURE	<u>13,873.23</u>
TOTAL NET EXPENDITURE OF PROJECT TODATE	\$ <u>908,608.55</u>

(34) C.S.D.P. - Equipment Acquisition

In 1976, the City purchased such equipment as graders, roller, bombardier plow, backhoe, etc. under Service Development. (See list of Machinery purchased and charged to Capital Service Development Equipment).

1976 NET EXPENDITURE	\$ 189,961.50
1975 NET EXPENDITURE	165,149.47
PREVIOUS EXPENDITURES	<u>101,148.32</u>
TOTAL EXPENDITURE TODATE	\$ <u>456,259.29</u>

(35) C.S.D.P. - Salt Storage Shed

The expenditure for this project was for construction of a salt storage shed at Fredericton North Depot by Carl S. Hay Ltd. and for professional services by A.D.I. Limited.

1976 EXPENDITURE	\$ <u>28,667.93</u>
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(36) C.S.D.P. - Solid Waste Disposal Site

Expenditures incurred for this project in 1976 were for professional services by MacLaren Atlantic Ltd., for gravel from Forbes & Sloat Ltd. and for Journal Vouchers regarding payroll.

1976 NET EXPENDITURE	\$ 15,121.10
1975 NET EXPENDITURE	8,725.42
PREVIOUS EXPENDITURES	<u>3,153.34</u>
TOTAL EXPENDITURE OF PROJECT TODATE	\$ <u>26,999.86</u>

(37) C.S.D.P. - Water - Marysville Mill

The purpose of this project was to up-grade the water main outside the mill so that plumbing could be changed on the inside and a meter installed. A gate valve was installed in the supply main and a manhole built.

1976 EXPENDITURE	\$ <u>1,053.66</u>
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(38) C.S.D.P. - Storm Sewer - Nashwaaksis

The expenditure incurred under this project was for a preliminary survey done by J. E. Brooks & Associates regarding 1977 construction in Nashwaaksis.

1976 EXPENDITURE \$ 6,771.20

The following items of machinery were purchased in 1976 and charged to CAPITAL SERVICE DEVELOPMENT (EQUIPMENT):

1 - Essick V30W Walk Behind Roller - Asset No. 84-76

Cost	\$ 4,864.00
Plus 8% SS&E Tax	<u>389.12</u>
TOTAL COST	\$ <u>5,253.12</u>

1 - Model SW-48F Bombardier Sidewalk Plow - Asset No. 125-75

Cost	\$ 11,000.00
Plus 8% SS&E Tax	<u>880.00</u>
Less Rental Charges	<u>11,880.00</u>
BALANCE	\$ <u>5,616.00</u>

2 - Galion Model T-500A Graders - Asset No.'s 43-76 & 44-76

Cost	\$ 91,110.00
Licenses & Transfers	12.00
Plus 8% SS&E Tax	<u>7,288.80</u>
TOTAL COST	\$ <u>98,410.80</u>

1 - Galion Model T-600B Grader - Asset No. 45-76

Cost	\$ 54,450.00
License & Transfer	6.00
Plus 8% SS&E Tax	<u>4,356.00</u>
TOTAL COST	\$ <u>58,812.00</u>

1 - Model 780 Case Loader Backhoe - Asset No. 253

Cost	\$ 38,000.00
Less Trade: Case Model 680 Backhoe	<u>14,000.00</u>
	24,000.00
Plus 8% SS&E Tax	<u>1,920.00</u>
	25,920.00
Less 90% of Lease Payments	<u>5,400.00</u>
	20,520.00
Less Tax Charged on Lease Payments	<u>480.00</u>
	20,040.00
Less Overpayment	<u>1,080.00</u>
TOTAL NET COST	\$ <u>18,960.00</u>

3 - Hydraulic Clutch Assemblies for Sanders

Cost	\$ 1,315.50
Plus 8% SS&E Tax	<u>105.24</u>
TOTAL COST	\$ <u>1,420.74</u>

CAPITAL ACCOUNT GRAVEL ROADS

GROSS EXPENDITURE	\$ 244,012.58
LESS CREDITS	<u>149,258.97</u>
NET EXPENDITURE	\$ <u>94,753.61</u>

The above credits are made up as follows:

Journal Vouchers	\$ 2,833.56
Topmar Housing Ltd.)	18,247.08
New Brunswick Housing Corp.)	25,700.57
Hill Brothers Realty Ltd.) Local	9,311.70
New Brunswick Housing Corp.) Improvement	70,406.91
Hill Brothers Realty Ltd.) ... Charges	12,837.33
Brawnco Const. Co. Ltd.)	9,476.93
Chippins Ltd.)	218.21
New Brunswick Housing Corp.)	202.38
Eric Seeley - Re Gravel Used on S.S. Installation	24.30
TOTAL	\$ <u>149,258.97</u>

Included in the above expenditures are:

- (1) Grading and Gravelling Curbed Streets
- (2) Gravel Road Construction

1) Grading and Gravelling Curbed Streets

The list of streets under this heading will be found under "Capital Curb & Gutter" which is found in the body of this report on Page 20. The expenditure for gravelling curbed streets amounted to \$69,998.83.

2) Gravel Road Construction

The cost of constructing and gravelling the following streets under this heading was as follows:

Location	Lineal Feet	Expenditure
Abbott Ct.	691	\$ 12,837.33
Gulliver Dr.	597	9,311.70
Kingsley Ct.	544	9,476.93
Lapointe Ct. Area - Foster St.	770	18,247.08
N.B.H.C. - Marysville	2,042	25,700.57
N.B.H.C. - Nashwaaksis	3,450	74,879.51
TOTALS	8,094	\$ 150,453.12

The total mileage for new street construction under Capital Account Gravel Roads for 1976 = 1.53 Miles

CAPITAL ACCOUNT CITY HALL

EXPENDITURE \$ 2,745.57

The above expenditure was for Journal Vouchers regarding payroll, machinery and pensions; asphalt; Blue Ray Scavenger Unit; etc.

CAPITAL ACCOUNT TRAFFIC LIGHTS

EXPENDITURE \$ 16,555.83

The above expenditure is made up as follows:

Journal Vouchers (Payroll, Pensions, Machinery) ...	\$ 2,466.78
Stan Cassidy Ltd.	1,670.90
A.D.I. Ltd. (Intersection Studies)	2,002.40
Miscellaneous (Prints, Asphalt, Ready-Mix, Etc.) ..	415.75
Stan Cassidy Limited	<u>10,000.00</u>
TOTAL	\$ <u>16,555.83</u>

The above payments to Stan Cassidy Ltd. were for alterations at Beaverbrook and Regent Street Intersection and for the installation of traffic lights at the Regent Street and Priestman Street Intersection.

CAPITAL ACCOUNT RECREATION

EXPENDITURE \$ 1,954.00

The above expenditure was for Journal Vouchers regarding payrolls, pensions, machinery and materials.

CAPITAL ACCOUNT - NEIGHBOURHOOD IMPROVEMENT PROGRAM

EXPENDITURE \$ 196.88

The above expenditure was made up as follows:

Journal Vouchers (Payrolls, Pensions, Machinery) ..	\$ 100.76
Journal Voucher (Norway Maples)	96.12
Journal Vouchers (Brick, Cement, Pipe, Etc.)	<u>556.23</u>
	753.11
<u>LESS CREDIT:</u> Materials Charged in Error	<u>556.23</u>
NET EXPENDITURE	\$ <u>196.88</u>

LOCAL IMPROVEMENT -- 1976

The following summary of Local Improvement Projects undertaken or continued in 1976, shows the actual cost of construction (including holdback payments) which was paid for by the subdivider.

Location	Service	Cost	No. of Lots
Ira. Young & Assoc. (Regent St. - South of T.C.H.) Contract No. 8-75 Total Contract Costs	Water Domestic Sewer Total	\$ 72,343.61 <u>80,831.42</u> <u>153,175.03</u>	
Less 10% Share - Max. \$6,300. By City - Max. \$9,300	Water Domestic Sewer Total	<u>6,300.00</u> <u>8,083.14</u> <u>14,383.14</u>	
Costs to Ira Young & Assoc.	Water Domestic Sewer	<u>66,043.61</u> <u>72,748.28</u>	
	TOTAL	<u>\$138,791.89</u>	
Topmar Housing Ltd. (Lapointe Ct. Area - Foster St.) Contract No. 10-75	Water Domestic Sewer Storm Sewer Gravel Road	\$ 26,531.97 <u>15,738.17</u> <u>23,207.69</u> <u>18,495.72</u>	14 Single
N.B. Housing Corp. (Bunker St, Elliot St., Page St., Tapley Ct.) Contract No. 1-76	TOTAL	<u>\$ 83,973.55</u>	
Hill Brothers Realty Ltd. (Gulliver Dr. - Weyman St. to Walker St.) Contract No. 2-76	Water Domestic Sewer Storm Sewer Gravel Road Sidewalk	\$ 39,750.68 <u>25,829.71</u> <u>41,350.09</u> <u>25,700.57</u>	1 Multiple 21 Single
	TOTAL	<u>\$132,631.05</u>	
N.B. Housing Corp. (Dykeman St., Bates St., & Wilcox St.) Contract No. 4-76	Water Domestic Sewer Storm Sewer Gravel Road Sidewalk	\$ 11,581.35 <u>9,191.22</u> <u>10,117.62</u> <u>9,311.70</u> <u>2,918.15</u>	12 Single
	TOTAL	<u>\$ 43,120.04</u>	
Hill Brothers Realty Ltd. (Abbott Ct.) Contract No. 5-76	Water Domestic Sewer Storm Sewer Gravel Road	\$ 66,676.48 <u>41,002.84</u> <u>57,866.01</u> <u>70,406.91</u> <u>15,413.80</u>	76 Single
	TOTAL	<u>\$251,366.04</u>	
			6 Multiple

Location	Service	Cost	No. of Lots
Brawnco Const. Co. Ltd. (Kingsley Ct.) Contract No. 6-76	Water Domestic Sewer Storm Sewer Gravel Road	\$ 3,824.27 3,575.01 13,405.10 <u>9,476.93</u>	1 Multiple
	TOTAL	\$ <u>30,281.31</u>	
Chippins Ltd. - Vanier Hwy. Subdivision (Emmerson St. & Ct., Blair St. & Hatheway St.) Contract No. 11-76 Incomplete	Water Domestic Sewer Storm Sewer Gravel Road Sidewalk	\$ 1,754.98 17,968.20 39,974.00 218.21 <u>9,000.00</u>	58 Single
	TOTAL	\$ <u>68,915.39</u>	
N.B. Housing Corp. (Vanier Hwy. Subdivision - Portion of Emmerson St.) Contract No. 11-76 (Incomplete)	Water Domestic Sewer Storm Sewer Gravel Road Sidewalk	\$ 1,707.61 220.74 6,596.31 202.38 <u>3,240.00</u>	2 Multiple
	TOTAL	\$ <u>11,967.04</u>	

**SUMMARY OF COSTS TO SUBDIVIDERS OR DEVELOPER FOR SERVICES
1976**

Water	\$ 231,139.23
Domestic Sewer	197,654.62
Storm Sewer	210,083.06
Gravel Road	146,649.75
Sidewalk	<u>30,571.95</u>
TOTAL ...	\$ <u>816,098.61</u>

Number of Lots Developed	181 Single
	- Duplex
	10 Multiple

ENVIRONMENTAL HEALTH SERVICES

GROSS EXPENDITURE	\$ 326,165.12
LESS CREDITS	<u>272.78</u>
NET EXPENDITURE	\$ <u>325,892.34</u>

Under the above heading, the following items are included:

- (1) Garbage & Waste Collection
- (2) Sanitary Landfill - Disposal

1) Garbage & Waste Collection

In 1976, Garbage and Waste Collection was operated by Maritime S & S Ltd. The amount paid for the above operation was \$214,739.00 and is made up as follows:

Maritime S & S Ltd. - Collection Contract	\$ 202,000.00
City of Fredericton - Security Deposits	12,000.00
The Daily Gleaner - Advertisement	737.00
Seaboard Surveys Ltd. - Print of Collection Schedule	<u>2.00</u>
TOTAL	\$ <u>214,739.00</u>

440,000

400,000

360,000

320,000

280,000

240,000

200,000

160,000

120,000

80,000

40,000

0

COSTS

1976 TOTAL

1975 TOTAL

1975 TOTAL

1976 TOTAL

LANDFILL & BULLDOZING
SERVICES

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

SANITATION COSTS - 1975 & 1976

335-5131 Metric

2) Sanitary Landfill - Disposal

The expenditure under this section was for the following:

Bulldozing Services (Contract)	\$ 38,840.00
Gravel & Cover Material	51,910.75
Journal Vouchers (Payroll, Pensions, City Machinery)	19,453.62
Workmen's Compensation Board - 1976 Assessment	1,158.00
Miscellaneous - Keys, "U" Bolts, Etc.	63.75
GROSS EXPENDITURE	111,426.12
<u>LESS CREDIT:</u> Mr. J. Edwards - Paper Salvage	272.78
NET EXPENDITURE	\$ 111,153.34

PUBLIC HEALTH SERVICES - CEMETARIES

Under this heading are included:

- (1) The Old Burial Ground
- (2) The Loyalist Burial Ground

1) The Old Burial Ground

GROSS EXPENDITURE	\$ 15,171.88
<u>LESS CREDIT</u>	271.25
NET EXPENDITURE	\$ 14,900.63

The above expenditure was made up as follows:

Personnel (Labour, Pensions, Compensation)	\$ 3,969.83
*General Services (Machinery, Lighting, Etc.)	11,080.35
Goods (Materials, Tools, Etc.)	121.70
GROSS EXPENDITURE	15,171.88
<u>LESS CREDIT:</u> Central Trust (Trust Fund)	271.25
NET EXPENDITURE	\$ 14,900.63

* This includes an expenditure of \$10,452.24 for payroll and materials towards the construction of the Old Burial Ground Fence.

2) The Loyalist Burial Ground

GROSS EXPENDITURE	\$ 110.95
LESS CREDITS	-
NET EXPENDITURE	\$ 110.95

The above expenditure was made up as follows:

Personnel (Labour, Pensions, Compensation)

\$ 110.95

CULTURAL SERVICES

(a) WILMOT PARK

EXPENDITURE	\$ 12,762.36
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The above expenditure was made up as follows:

Personnel (Labour, Pensions, Compensation)	\$ 10,130.70
General Services (Repairs & Maintenance, Lighting, Machinery)	1,999.96
City Government Services (Water & Sewer Rates)	126.78
Goods (Materials, Supplies, Gas & Oil)	504.92
GROSS EXPENDITURE	\$ <u>12,762.36</u>

(b) ODELL PARK

GROSS EXPENDITURE	\$ 19,105.83
LESS CREDITS	<u>156.31</u>
NET EXPENDITURE	\$ <u>18,949.52</u>

The above expenditure was made up as follows:

Personnel (Labour, Pensions, Compensation)	\$ 16,090.87
General Services (Telephone, Repairs & Maintenance, Machinery)	2,023.76
Goods (Materials, Supplies, Diesel Fuel, Gas, Etc.)	<u>991.20</u>
GROSS EXPENDITURE	\$ 19,105.83
<u>LESS CREDITS:</u> John Doherty - Payment on L.D. Calls ..	32.31
Journal Voucher - Inter-Dept. Use of M.F. Tractor	<u>124.00</u>
NET EXPENDITURE	\$ <u>18,949.52</u>

(c) CARLETON PARK

EXPENDITURE	\$ <u>8,102.65</u>
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The above expenditure was made up as follows:

Personnel (Labour, Pensions, Compensation)	\$ 5,546.56
General Services (Repairs, Maintenance, Machinery, Land Rental)	1,942.00
Goods (Materials, Supplies, Gas & Oil)	<u>614.09</u>
TOTAL	\$ <u>8,102.65</u>

(d) DEVELOPMENT OF PARK AREAS

GROSS EXPENDITURE	\$ 5,088.58
LESS CREDITS	<u>540.00</u>
NET EXPENDITURE	\$ <u>4,548.58</u>

The above expenditure was made up as follows:

Personnel (Labour, Pensions, Compensation)	\$ 2,094.61
General Services (Repairs, Maintenance, Machinery) ...	962.00
Goods (Materials, Supplies, Gas, Etc.)	<u>2,031.97</u>
GROSS EXPENDITURE	\$ 5,088.58
<u>LESS CREDITS:</u> Journal Vouchers (Cedar Posts)	540.00
NET EXPENDITURE	\$ <u>4,548.58</u>

(e) OTHER PARKS

EXPENDITURE \$ 1,180.75

The above expenditure was made up as follows:

Personnel (Labour, Pensions, Compensation)	\$ 751.86
General Services (Repairs, Maintenance, Machinery) ...	264.19
Goods (Materials, Supplies, Etc.)	<u>164.70</u>
TOTAL	\$ <u>1,180.75</u>

(f) PUBLIC WORKS

GROSS EXPENDITURE	\$ 146,783.84
LESS CREDITS	<u>62,725.82</u>
NET EXPENDITURE	\$ <u>84,058.02</u>

The above total credits of \$62,725.82 were made up as follows:

N.B.E.P.C. - Tree Removal	\$ 1,823.56
N.B.E.P.C. - Trimming Trees	48.41
Dept. of Municipal Affairs - Tree Clean up After Flood	1,294.89
Dept. of Natural Resources - Tree Removal Costs	40,000.00
Mr. David Wilson - Removal of Stumps	10.02
Dr. John McMullen - Removal of Stumps	7.60
Valley Forest Products - Purchase of Elmwood	7,584.21
Journal Voucher (Cedar & Norway Maples)	102.42
Allstate Insurance - Re Tree Damages	50.00
Neighbourhood Improvement Program - Tree Planting ...	562.50
Workmen's Compensation Board - Re Gary Stafford	225.25
Journal Voucher - Mobile Radio	5,992.03
Hatheway T.V. Service - Removing Stumps	10.00
Workmen's Compensation Board - Re Myles Yeomans	60.48
Journal Voucher - Correction of Machinery Charges ...	1,900.00
Workmen's Compensation Board - Re Dave Urquhart	657.70
Journal Voucher - Inter-Dept. Use of Machinery	1,636.00
Government of Canada - Gasoline Rebate	93.20
Journal Voucher - Regular Gasoline (Out)	591.25
Mr. D. Urquhart - Land Lime	76.30
TOTAL	\$ <u>62,725.82</u>

The hired trucks, labour and City Machinery charged under Public Works Expenditure were incurred as follows:

Item	Labour & Supervision	Hired Trucks	City Machinery
Trees	\$49,673.75	\$678.75	\$29,549.59
Back Drain	2,483.95	-	166.50
Surface Sewer	208.91	-	63.00
Unforeseen	11,895.10	-	981.00
Back Drain Diversion	-	-	-
Casual's Vacation Pay	29,410.75	-	-
TOTALS	\$93,672.46	\$678.75	\$30,760.00

110,000

100,000

90,000

80,000

70,000

60,000

COSTS

50,000

40,000

30,000

20,000

10,000

0

JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
PUBLIC WORKS COSTS - 1975 & 1976

1975 TOTAL

1976 TOTAL

1975 LABOUR & MACH.
1975 LABOUR

1976 LABOUR & MACH.
1976 LABOUR

The above net expenditure was made up as follows:

Personnel (Labour, Pensions, Unemployment Insurance, Compensation, Honorarium)	\$ 41,702.19
General Services (Repairs, Maintenance, Care of Trees, Machinery & Trucking, Etc.)	31,977.07
Goods (Materials, Supplies, Gas & Oil, Trees & Seeds)	<u>10,378.76</u>
TOTAL	<u>\$ 84,058.02</u>

The Provincial Government allocated a maximum of \$40,000.00 in their fiscal year from April 1, 1976 to March 31, 1977 as their share towards removal of diseased elm trees in the amalgamated area.

In 1976, 766 trees were removed upon the recommendation of the Fredericton Tree Commission. The condemned trees were either in a decadent condition, a menace to public safety or possible breeding places for the Elm Bark Beetle.

Following is a list of trees removed in 1976:

<u>Species</u>	<u>Number Removed</u>
Elm	698
Pine	23
Maple	15
Cherry	1
Spruce	15
Oak	1
Cedar	4
Ash	3
Willow	1
Poplar	4
Birch	1
TOTAL	<u>766</u>

The procedure followed at present time is as follows:

The trees are condemned by four members of the Fredericton Tree Commission. The list, signed by the four members of the Commission is then forwarded to the office of the City Engineer.

Trees on private property which are condemned as possible breeding places for the Dutch Elm Disease, are also removed by City Crews.

In 1976, 118 trees were removed with Dutch Elm Disease at various locations within the Pre-Amalgamated Fredericton Area.

Following is a list of trees (Elm) removed from 1964 to 1976 with Dutch Elm Disease in the Pre-Amalgamation Area of Fredericton.

Year	No. Lost to Dutch Elm Disease	% Lost to Dutch Elm Disease	Other Causes	Total
1964	14	29 %	34	48
1965	8	24	25	33
1966	12	21	44	56
1967	18	20	73	91
1968	33	16	174	207
1969	30	21	108	138
1970	49	39	78	127

Year	No. Lost to Dutch Elm Disease	% Lost to Dutch Elm Disease	Other Causes	Total
1971	57	42 %	77	134
1972	61	42	84	145
1973	92	46	108	200
1974	132	33	266	398
1975	75	19.6	307	382
1976	*118	28.2	300	418
TOTALS	699	29.4%	1,678	2,377

* Not the entire total recommended for removal. The remainder to be removed in 1977.

Permission for the removal of trees on private property, as well as a statement to the effect that no claim for damages will be filed by the property owners, are obtained before proceeding with this work.

Trees were planted at the following locations in 1976:

Location	Number of Trees
Flemming Rd.	29
Tilley Dr.	25
Beaconsfield St.	47
Meadow Green Ct.	22
Parkside Dr.	7
Greenfields Dr.	5
Greenfields Ct.	7
Hollybrook St.	35
Cowperthwaite St.	6
Tower Rd.	9
Daulphin St.	19
Manzer St.	29
Clayton St.	23
Lapointe St.	18
Foster St.	4
Grant St.	14
McPherson St.	5
Leslie St.	7
Maple St.	38
Kings Place	4
Regent St.	5
759 George St.	1
Queen St. & Waterloo Row Greens	4
Valleyview Dr.	5
Oxford St.	4
48 Flemming Rd.	1
269 Flemming Rd.	1
Opposite 517 Priestman St.	1
Trans Canada - Rear of Prospect St. Lots	38
Stock C. C. Smith	3
205,215 Woodbridge St.	2
Fort Nashwaak Motel	1
115 Church St.	1
Charlotte St. School	2
330 Parkhurst Dr.	1
157 Irvine St.	1
746 Irvine St.	1
Douglas Ave.	19
198 Charing Cres.	1
35 Charing Cres.	1
York Manor	3
Prospect St.	5
Priestman St.	4
TOTAL	458

198 trees were planted at various locations to replace losses due to dry weather and vandalism.

Under the above heading, the following trees were purchased in 1976 from Lansdowne Nursery, Fredericton, N.B. and John Connell Nurseries Ltd., Waterdown, Ontario:

John Connell Nurseries Ltd.:

25 Acer platanoides 8'-10' @ \$7.40 each	\$ 185.00
10 Acer platanoides 10'-12' @ \$9.90 each	99.00
25 Acer Crimson King 8'-10' @ \$13.40 each	335.00
25 Acer Royal Red 8'-10' @ \$13.40 each	335.00
100 Acer saccharum 8'-10' @ \$9.20 each	920.00
25 Acer rubrum 8'-10' @ \$8.90 each	222.50
75 Tilia cordata 8'-10' @ \$7.20 each	540.00
55 Tilia DeGroot 8'-10' @ \$7.20 each	396.00
120 Tilia Greenspire 8'-10' @ \$7.20 each	864.00
50 Populus thevestina 8'-10' @ \$3.50 each	<u>175.00</u>
	4,071.50
Freight	400.00
TOTAL	<u>\$ 4,471.50</u>

Lansdowne Nursery:

7 White Ash 8'-10' @ \$8.00 each	\$ 56.00
6 White Ash 10'-12' @ \$9.50 each	57.00
35 Norway Maple 8'-10' @ \$7.50 each	262.50
24 Norway Maple 10'-12' @ \$10.25 each	246.00
3 Red Maple 8'-10' @ \$9.00 each	27.00
3 Sugar Maple 10'-14' @ \$9.50 each	28.50
40 Schudler Maple 8'-10' @ \$9.75 each	390.00
12 Tilia Cordata 6'-8' @ \$6.75 each	81.00
10 Tilia Cordata 8'-10' @ \$7.50 each	75.00
13 Tilia Cordata 10'-12' @ \$15.00 each	195.00
2 Crimson King Maple 8'-10' @ \$13.00 each	26.00
2 Red Oak 8'-10' @ \$9.00 each	18.00
12 White Cedar 3' @ \$2.00 each	<u>24.00</u>
	TOTAL
	<u>\$ 1,486.00</u>

A number of trees were also trimmed in 1976. The number and class of trees are as follows:

- (a) Large Trees (45' and Over)
 - Approximately 123 mixed species
- (b) Medium Trees (20' - 45')
 - Approximately 592 mixed species
- (c) Small Trees (6' - 20')
 - Approximately 2,000 mixed species

A number of stumps were also removed along City Streets.

Stumps Removed and Topsoiled 237

CONCRETE SIDEWALK CONSTRUCTION

GROSS EXPENDITURE	\$ 129,305.55
LESS CREDITS	<u>30,571.95</u>
NET EXPENDITURE	<u>\$ 98,733.60</u>

For the above expenditure, Concrete Sidewalks were constructed at the following locations:

<u>Location</u>	<u>Lineal Feet</u>
Smythe St. - Montgomery St. to Priestman St. - East Side	1,436
Weyman St. - South Side	1,110
McKeen St. - East Side	837
Mansfield St. - North Side	532
Longwood Dr. - Fulton Ave. to MacDonald Ave. - South Side	1,292
Prospect St. - Existing to Greenfields Dr. - North Side	749
Hawkins St. - Royal Rd. to Ebony Dr. - North Side	1,312
MacDonald Ave. - Longwood Dr. to Maple St. - West Side	900
Park St. - North Side	504
Wallace Ave. - East Side	1,215
Douglas Ave. - C.P.R. Tracks to Main St. - West Side	286
Elgin St. - West Side	791
Wetmore Rd. - Built Up Areas - South Side	779
Chandler Dr. - North Side	635
Bliss St. - South Side	1,157
Brookside Dr. - North Side	<u>140</u>
TOTAL	<u>13,675</u>

13,675 Lineal Feet = 2.59 Miles

The above expenditure was made up as follows:

Materials - Fibreene, Polyethelene, Stakes, Bedding Sand, Etc.	\$ 6,562.03
Car Allowances	269.70
Seaboard Services Ltd. - 1975 Holdback	554.97
Diamond Construction (1961) Ltd. - Nashwaaksis Sidewalks	66,596.28
Gordon's Ready-Mix Ltd. - Concrete	15,710.41
Journal Vouchers - Payroll, Pensions, Machinery	35,445.41
C.W. Guthrie & Son Ltd. - Sod in Place	2,493.75
Workmen's Compensation Board - 1976 Assessment	383.00
N.B. Tel - Pole Relocation - Brookside Dr.	990.00
Margaret Gilbey - Compensation re Removal of Steps .	<u>300.00</u>
GROSS EXPENDITURE	129,305.55
LESS CREDITS: Local Improvement Agreements	<u>30,571.95</u>
NET EXPENDITURE	<u>\$ 98,733.60</u>

The City of Fredericton bears the entire cost of sidewalk installation, except where Local Improvement Agreements are in effect with a Developer on new streets.

The concrete for the above construction of sidewalks was obtained from Gordon's Ready-Mix Ltd. at \$27.75 per cubic yard.

The actual cost for laying one lineal foot of sidewalk by City Crews was \$7.62 which includes Compensation, Pension and Holiday Fund.

RECREATION

EXPENDITURE	\$ <u>5,727.50</u>
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The above expenditure does not include all playground expenditures, but only those which appear on departmental payrolls or costs of materials ordered through the office of the City Engineer. The salaries of recreation personnel are not in the above costs, nor does the cost of equipment on the playgrounds appear here.

The above expenditure was made up as follows:

Journal Vouchers (Payroll)	\$ 549.89
Journal Vouchers (Pensions)	29.68
Journal Vouchers (Machinery)	607.50
Journal Vouchers (Gasoline, Oil, Varsol, Diesel Fuel)	4,341.42
Journal Vouchers (Materials)	199.01
TOTAL	\$ <u>5,727.50</u>

MUNICIPAL PARKING LOTS - CAMPBELL STREET

In 1966, the City Council authorized the changing of the free Parking Area at the rear of City Hall in order to give better parking facilities to the shopping public. In 1973 the system was changed to attendant-type control from the original gate-type control.

In 1976, the expenditure for snow control and fence repairs for the above amounted to \$1,996.55 and was made up as follows:

Journal Vouchers (Payroll)	\$ 674.94
Journal Vouchers (Pensions)	26.12
Journal Vouchers (Machinery)	1,123.00
Journal Vouchers (Materials)	172.49
TOTAL	\$ <u>1,996.55</u>

In addition, a new Parking Area on Campbell Street, east of Westmorland Street was constructed in 1970.

In 1976, the expenditure for snow control, etc. amounted to \$1,047.10 and was made up as follows:

Journal Vouchers (Payroll)	\$ 397.75
Journal Vouchers (Pensions)	19.35
Journal Vouchers (Machinery)	630.00
TOTAL	\$ <u>1,047.10</u>

BEAVERBROOK RINK

The expenditure under this heading was \$184.78 and was made up as follows:

Journal Voucher (Finasol)	\$ 5.08
Journal Voucher (Gasoline)	163.55
Journal Voucher (Cement)	16.15
TOTAL	\$ <u>184.78</u>

TOURIST AND INDUSTRIAL PROMOTION

EXPENDITURE \$ 240.75

The above expenditure was made up as follows:

Journal Vouchers (Payroll)	\$ 191.04
Journal Vouchers (Pensions)	10.71
Journal Vouchers (Machinery)	<u>39.00</u>
TOTAL	\$ <u>240.75</u>

CITY HALL

EXPENDITURE \$ 931.55

The above expenditure is only the expenditure for the City Hall made through the office of the City Engineer and is not the total expenditure on City Hall.

The above expenditure was made up as follows:

Journal Vouchers (Payroll)	\$ 845.03
Journal Vouchers (Pensions)	32.52
Journal Vouchers (Machinery)	<u>54.00</u>
TOTAL	\$ <u>931.55</u>

NASHWAAKSIS ARENA

EXPENDITURE \$ 6.35

The above expenditure was made up as follows:

Journal Vouchers (Finasol) \$ 6.35

COLISEUM

EXPENDITURE \$ 112.50

The above expenditure was made up as follows:

Journal Vouchers (Regular Gasoline) \$ 112.50

FIRE & POLICE STATION

EXPENDITURE \$ 7.94

The above expenditure was for Journal Vouchers regarding payroll and machinery.

YORK ARENA

EXPENDITURE \$ 5.08

The above expenditure was made up as follows:

Journal Vouchers (Finasol) \$ 5.08

FIRE DEPARTMENT

NET EXPENDITURE \$ 357,663.33

The above expenditure was made up as follows:

Journal Vouchers (Hydrants & Sprinklers)	\$ 356,400.00
Journal Vouchers (Gasoline & Diesel Fuel)	3,571.76
Journal Vouchers (Payroll, Pensions, Machinery) ...	585.02
Journal Vouchers (City Decals)	102.00
Journal Vouchers (Anti-Freeze)	177.20
Journal Vouchers (Cement)	<u>10.50</u>
GROSS EXPENDITURE	360,846.48

LESS CREDITS: Journal Vouchers (Gasoline From
Fire Dept. Tanks) 3,183.15

NET EXPENDITURE \$ 357,663.33

POLICE DEPARTMENT

EXPENDITURE \$ 421.52

The above expenditure was for Journal Vouchers regarding payrolls,
pensions, machinery and materials.

INDUSTRIAL PARK - LAND ACCOUNT

EXPENDITURE \$ 46,604.44

The above expenditure is made up as follows:

Journal Vouchers (Payrolls, Pensions, Machinery, Materials)	\$ 24,666.98
Forbes & Sloat Ltd. (Gravel)	3,611.83
Flintkote Co. of Canada Ltd. (Chip Sealing - Whiting Rd.)	10,477.75
E.J. Ludford Line Const. Co. Ltd. (Progress Payment Contract 11-76)	7,827.48
Wendell Thomas - Bedding Sand	<u>20.40</u>
TOTAL	\$ <u>46,604.44</u>

LAND ACCOUNT - LAND ASSEMBLY

EXPENDITURE \$ 5,272.40

The above expenditure was made up as follows:

A.D.I. Ltd. - Doak Rd. (Subdivision Plan)	\$ 1,000.00
Seaboard Surveys Ltd. (Surveys - Industrial Park) ...		1,559.15
Seaboard Surveys Ltd. (Surveys - Lincoln Area)		2,530.75
Seaboard Surveys Ltd. (Updating Park Plan)		182.50
TOTAL		\$ <u>5,272.40</u>

LAND ACCOUNT - WESTMORLAND ST. PROPERTIES

EXPENDITURE \$ 4,625.21

The above expenditure was made up as follows:

Seaboard Surveys Ltd. (Re West Side - Queen St. to George St.) ...		\$ <u>4,625.21</u>
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QUEEN'S VISIT

EXPENDITURE \$ 1,852.82

The above expenditure was made up as follows:

Journal Vouchers (Payroll)	\$ 1,652.30
Journal Vouchers (Pensions)	92.52
Journal Vouchers (Machinery)	108.00
TOTAL	\$ <u>1,852.82</u>

TRAFFIC IMPACT STUDY

GROSS EXPENDITURE \$ 30,000.00

LESS: Fed. & Prov. Participation 25,000.00

NET EXPENDITURE \$ 5,000.00

The above expenditure was for professional services by the I.B.I. Group, who carried out the study in conjunction with the Tri-Level Urban Design Team.

PUBLIC TRANSIT

EXPENDITURE \$ 126.00

The above expenditure was made up as follows:

Journal Voucher (City Decals)	\$ 119.00
Journal Voucher (Cement)	7.00
TOTAL	\$ <u>126.00</u>

PAINT DEPARTMENT

EXPENDITURE \$ 1,366.49

The above expenditure was made up as follows:

Journal Vouchers (Cement)	\$ 466.49
Journal Vouchers (Space Rental)	<u>900.00</u>
TOTAL	\$ <u>1,366.49</u>

AMBULANCE

EXPENDITURE \$ 185.95

The above expenditure was made up as follows:

Journal Voucher (Gasoline)	\$ <u>185.95</u>
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DOMESTIC SEWER

GROSS EXPENDITURE	\$ 878,979.66
LESS CREDITS	<u>84,589.72</u>
NET EXPENDITURE	\$ <u>794,389.94</u>

The above expenditure was made up as follows:

Labour	\$ 161,060.32
Hired Trucks & Machinery	4,320.00
City Machinery Costs	46,006.00
Machinery Repairs	4,902.45
Material Costs	134,960.92
Pollution Control - Lincoln	1,951.51
F.A.P.C. Sewerage Treatment	339,347.46
Principal & Interest Charges	<u>186,431.00</u>
TOTAL	\$ <u>878,979.66</u>

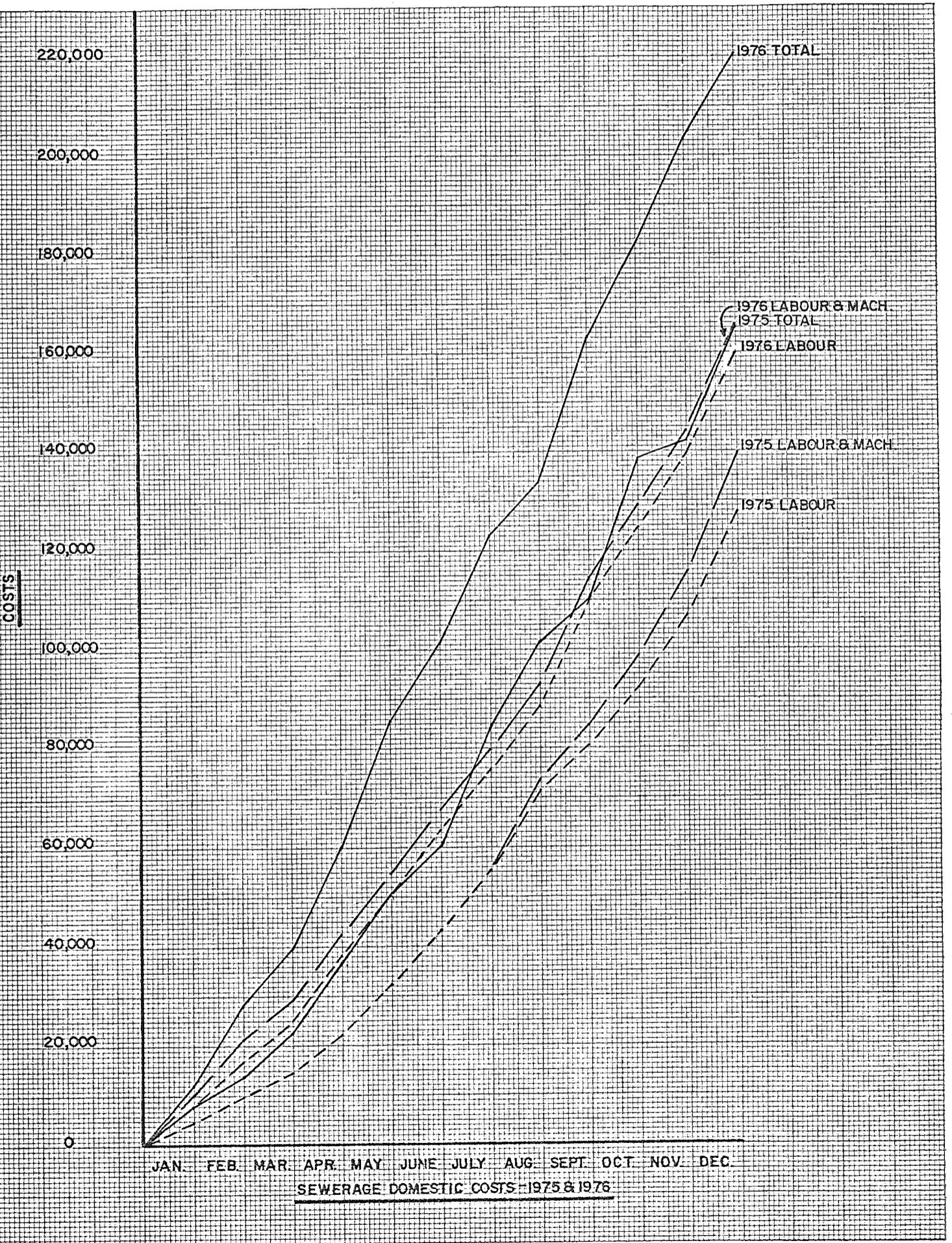
The credit of \$84,589.72 was made up as follows:

Materials, Labour & Supplies for Service	
Installations	\$ 80,902.55
Journal Vouchers (Material Out, Corrections, Etc.) ..	1,919.12
Province of New Brunswick	<u>1,768.05</u>
TOTAL	\$ <u>84,589.72</u>

New Customers connected to the City Sewer System in 1976 - 280

All Dead End Sewer Mains were cleaned and flushed in 1976.

The Fredericton Area Pollution Control Commission (F.A.P.C.) was formed in 1968 and work commenced on Pollution Control of Sewerage for the Fredericton Area, including Nashwaaksis, Marysville, Fredericton, and Barker's Point. This system was put into operation on October 10, 1970.



The Fredericton Domestic Sewer System consists of approximately 126.837 Miles of Sewer Mains and is made up as follows:

LENGTH OF MAINS IN MILES

Size	Silverwood	Nashwaaksis	Marysville	Barker's Pt.	Fredericton	Totals
4"	-	0.098	-	-	-	0.098
4"	-	-	-	-	0.512	0.512
F.M.	-	-	-	-	0.067	0.067
6"	-	0.874	0.195	-	1.42	1.136
6"	-	-	0.335	-	2.077	-
8"	2.743	17.614	9.572	4.458	60.497	94.884
8"	-	-	0.195	-	0.040	0.235
10"	0.090	1.791	0.377	0.176	4.525	6.959
12"	-	1.904	0.625	1.078	7.559	11.166
12"	-	-	-	-	0.459	0.459
F.M.	-	-	-	-	-	0.426
14"	-	0.426	-	-	-	-
14"	-	-	0.328	-	0.158	0.486
F.M.	-	-	0.311	0.108	1.630	3.393
15"	-	1.344	-	-	0.120	0.167
16"	-	0.047	-	-	1.829	2.687
18"	-	0.019	0.839	-	1.062	1.062
24"	-	-	-	-	0.200	0.200
30"	-	-	-	-	0.890	0.890
36"	-	-	-	-	-	-
TOTALS	2.833	24.117	12.777	5.820	81.290	126.837

- NOTE: (1) Mileages for Silverwood, Nashwaaksis, Barker's Point and Marysville are approximate only, due to measurement from plans.
- (2) Fredericton includes a portion of former Lincoln.

The above mileages do not include sewer mains at the Exhibition Grounds, University of New Brunswick, and St. Anne's Point on the Woodstock Road.

The Fredericton Area Pollution Control Commission Collector Sewer System constructed in 1969 and 1970 is not included in the above mileages. The approximate number of miles of this system is 7.1 and is made up of the following:

LENGTH - MILES

Size	*Fredericton North	Fredericton South	Total
8"	-	0.073	0.073
10"	-	0.210	0.210
10" Plastic F.M.	0.114	-	0.114
10" F.M.	-	0.189	0.189
12"	-	0.168	0.168
15"	-	0.288	0.288
16" Hyprescon F.M.	0.761	-	0.761
18"	-	0.323	0.323
18" F.M.	0.057	-	0.057
20"	0.691	-	0.691
20" Polyethylene Series 80	-	0.404	0.404
21"	0.721	0.204	0.925
22" Polyethylene Series 60	-	0.164	0.164
24"	1.311	-	1.311
30"	0.589	-	0.589
36"	0.108	0.432	0.540
42"	0.257	-	0.257
48"	0.040	-	0.040
TOTALS	4.649	2.455	7.104

* Fredericton North includes former Nashwaaksis, Devon, Marysville, and Barker's Point.

Following is a list of vehicles used and charged to "Domestic Sewer" showing a comparison of repair charges for 1975 and 1976, including tires and tubes:

Name of Vehicle	Year Purchased	1975 Repairs	1976 Repairs
Ford 1/2 Ton Van #5	1971	\$2,574.90	\$1,157.57
Ford 1/2 Ton Crew Cab #114	1974	534.14	1,959.89
Chev. Crew Cab #115	1975	234.21	134.81
Dodge 1/2 Ton #116	1975	72.89	480.53
Dodge 3/4 Ton #252-76	1976	-	172.80
*Ford 3/4 Ton #252	1974	2,025.01	996.85
TOTALS		\$5,441.15	\$4,902.45

* From September 1976, this vehicle became #10-73 with repair charges falling under "Water Ordinary".

WATER

There are at present 25 wells in the City of Fredericton Water System (23 active wells and 2 test wells) and 18 Reservoirs.

ACTIVE WELLS - NORTH SIDE OF ST. JOHN RIVER:

Well	Location
Maple Street Well	110 yards west of intersection of St. Marys St. and Maple St.
Cliffe Street Well	10 yards east of intersection of Dedham St. and Cliffe St. This well is a standby service only due to marginal Chemical Characteristics.
Carleton Well 1963	200 yards north of former City Line and 400 yards easterly from Highland Avenue
Killarney Well	10 yards west of Killarney Rd. and 900 yards north of Maple St. and St. Marys St. intersection
Nashwaaksis #1	50 yards west of the intersection of Fulton Ave. and Maple St.
Nashwaaksis #2	50 yards west of intersection of Maple St. and Oak Ave. on Maple St.
Nashwaaksis #3	35 yards west of the intersection of Maple St. and Douglas Ave. on Maple St.
Sunset Drive Well	50 yards southwest of the intersection of Sunset Dr. and McNeil Ave. on Sunset Dr.
Marysville #1	450 yards northwest of the intersection of Tower Rd. and Cowperthwaite St. on Tower Rd.
Marysville #2	170 yards northwest of the intersection of Tower Rd. and Cowperthwaite St. on Tower Rd.
Marysville #3	50 yards west of the southerly intersection of Minue Terrace and McGloin St. on Minue Terrace
Barker's Pt. #1	250 yards east of intersection of Greenwood Dr. and Victory Ave. on Greenwood Dr.

Well	Location
Barker's Pt. #2	100 yards east of intersection of Greenwood Dr. and Dewitt Acres on Greenwood Dr.
Killarney Rd. #1	2790 yards north of Maple St. and St. Marys St. intersection on the west side of Killarney Rd.
Killarney Rd. #2	3013 yards north of Maple St. and St. Marys St. intersection on the west side of Killarney Rd.

ACTIVE WELLS - SOUTH SIDE OF ST. JOHN RIVER:

Well	Location
Fredericton Well #1	gravel-wall well located in Wilmot Park, 60 yards southeast of Rookwood Ave. and Woodstock Rd. intersection
Fredericton Well #3	gravel-wall well located in Wilmot Park, 100 yards southwest of Odell Ave. and Woodstock Rd. intersection
Fredericton Well #4	gravel-wall well located in Wilmot Park, 233 yards southeast of Rookwood Ave. and Woodstock Rd. intersection and 260 yards southwest of Odell Ave. and Woodstock Rd. intersection
Fredericton Well #5	gravel-wall well located on Woodstock Rd. on the south bank of the St. John River, west of the R.C.M.P. "J" Division Headquarters, 190 yards northwest of Rookwood Ave. and Woodstock Rd. intersection
Hanwell Rd. Well	rock-wall well located on the southeasterly side of Cameron Ct., 187 yards south of the Cameron Ct. and Hanwell Rd. intersection. This supplies approximately three quarters of the residences on Hanwell Rd.
Silverwood #1	30 yards north of intersection of the T.C.H. and Orchard Dr. on the T.C.H.
Silverwood #2	50 yards south of intersection of Mountain Dr. and Fairview Dr.
Silverwood #3	392 yards west and 628 yards south of Silverwood Reservoir

TEST WELLS ONLY:

Wells	Location
Nashwaaksis #4	50 yards east of the intersection of Teak Dr. and Bird Ave. on Teak Dr.
Silverwood #4	Southeast of intersection of T.C.H. and MacIntosh Brook, 300 yards south of T.C.H. and 100 yards east of MacIntosh Brook

Following is a list of Reservoirs and their capacities which provide water storage for the City of Fredericton Waterworks System:

FREDERICTON SOUTH:

Location	Number of Reservoirs	Total Capacity (I.G.)
Silverwood	1	50,000
Regent St.	1	250,000
Montgomery St.	3	2,250,000
Smythe St.	2	4,000,000
U.N.B.	1	100,000
Forest Hill (Canterbury Dr.)	2	243,000
Flemming Rd.	1	825,000
Hanwell Rd.	1	<u>100,000</u>
SUB-TOTAL	12	7,818,000

FREDERICTON NORTH:

Nashwaaksis	2	630,000
Barker's Pt.	1	250,000
Marysville	1	625,000
Carleton Ward	1	1,000,000
Killarney Rd.	1	<u>820,000</u>
SUB-TOTAL	6	3,325,000
OVERALL TOTALS	18	11,143,000

The Water Account includes all expenditures other than Capital Expenditure for Water.

The Water Costs for the City of Fredericton are divided as follows:

1) Water Administration (Salaries of Office Staff, Office Equipment, Billing & Collecting) ..	\$ 137,977.45
2) Water Ordinary	469,873.26
3) Water Pumping Station & Well Production Costs ..	209,291.80
4) Amortization Costs (Principal)	284,023.00
5) Interest Charges	<u>413,273.00</u>
GROSS EXPENDITURE	1,514,438.51
* LESS CREDITS	<u>84,908.22</u>
NET EXPENDITURE	<u>\$ 1,429,530.29</u>

* Credits will be found under individual headings.

(1) WATER ADMINISTRATION:

GROSS EXPENDITURE	\$ 137,977.45
LESS CREDITS	<u>11,067.00</u>
NET EXPENDITURE	<u>\$ 126,910.45</u>

The above credit was made up as follows:

U.I.C. - Overpayment for previous years	\$ 67.00
Journal Voucher - Salaries charged to Capital Accounts	<u>11,000.00</u>
TOTAL	<u>\$ 11,067.00</u>

The expenditure for Billing and Collecting was \$97,506.25 and was made up as follows:

Salaries	\$ 60,699.40
Rental of Office Space	3,828.00
Equipment & Supplies	28,540.83
Telephones	1,111.00
Postage	<u>3,327.02</u>
TOTAL	\$ 97,506.25

METERS:

On December 31, 1976 there were 8,122 water services on meter and 1,949 on Flat Rate, making a total of 10,071.

The labour cost per meter for installing, reading, etc. was \$5.52 for 1976.

765 meters were installed in 1976, 432 regular meters changed to TRT, and 11 ARB meters changed to TRT.

In 1976, 13 discontinued services were excavated and shut off at the main, 112 stopped meters replaced and 29 frozen meters replaced.

In 1976, all meters were read quarterly and billed quarterly during the year.

METERS IN STOCK DECEMBER 31, 1976

Size	ARB	Regular	TRT	To Be Repaired			Total
				ARB	Regular	TRT	
1/2"	2	5	43	-	7	-	57
5/8"	10	10	120	-	8	-	148
3/4"	1	2	7	-	7	-	17
1"	-	3	3	-	1	-	7
1 1/4"	-	1	-	-	1	-	2
1 1/2"	-	-	5	-	2	-	7
2"	-	-	8	-	1	-	9
3"	-	2 Compound	-	-	-	-	2
TOTALS	13	23	186	-	27	-	249

(2) WATER ORDINARY:

The expenditure under this heading was as follows:

GROSS EXPENDITURE	\$ 469,873.26
LESS CREDITS	<u>71,821.94</u>
NET EXPENDITURE	\$ 398,051.32

The above credits were made up as follows:

Journal Vouchers (Corrections, Materials)	\$ 2,406.59
Service Installations	64,171.54
Repairs to Water Services, Hook-up Charges, Thawing Services, etc.	33.18
Relaying Water Services	56.59
Workmen's Compensation Board	1,185.66

COSTS

440,000

400,000

360,000

320,000

280,000

240,000

200,000

160,000

120,000

80,000

40,000

0

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

WATER ORDINARY COSTS 1975 & 1976

1975 TOTAL

1976 TOTAL

1976 LABOUR

1975 LABOUR & MACH.

1975 LABOUR

Metric

335-5131



J.L. Simms Ltd. (Returning Parts)	\$ 16.99
Barney's Motorcade (Re Overpayment)	9.45
J. W. Bird & Co. Ltd. (Returning Padlocks)	34.99
Hydrants - Maintenance - Installation	1,452.64
Meter Repairs	517.10
Neptune Meters Ltd. (Invoice Corrections)	289.70
Sale of Scrap Meters	82.00
Canadian General Electric (Returned Material)	54.18
Canadian Indemnity Ltd.	950.08
George Marshall - Overpayment of Wages	243.56
Sale of Scrap Parts & Metal	231.00
Crane Supply Ltd. - Credit	86.69
TOTAL	\$ 71,821.94

The GROSS EXPENDITURE was made up as follows:

City Payrolls for Hydrants (Labour)	\$ 22,442.20
City Payrolls for Hydrants (Maintenance)	9,438.67
City Payrolls for Meters (Repairs)	9,416.57
City Payrolls for Meters (Reading)	12,343.36
City Payrolls for Meters (Installation)	23,064.83
City Payrolls for Water (Installation)	39,217.63
City Payrolls for Water (Maintenance)	77,506.91
City Payrolls for Boosters (Labour - Outside Operators)	13,822.46
City Payrolls for Boosters (Maintenance)	-
TOTAL PAYROLLS	207,252.63
Hired Machinery Charges	-
Vehicle Repair (Excluding Shop Labour)	6,715.50
City Machinery Charges	50,897.00
Materials	114,331.28
Hydrants (Maintenance & Installation Materials) ...	7,102.52
Meters (Maintenance & Installation Materials)	83,574.33
GROSS EXPENDITURE	\$ 469,873.26

The following Sprinklers were installed in 1976:

- (1) Howard Johnson Motel - Riverside Dr.
- (2) Nashwaaksis Arena - Johnston Ave.
- (3) Medjucks Ltd. - 525 Prospect St. East
- (4) Atlantic Wholesalers - 670 Wilsey Rd.
- (5) Lord Beaverbrook Hotel - 669 Queen St.
- (6) Triple "A" Builders - 105 Whiting Rd.
- (7) Fredericton Motor Inn Ltd. - 1315 Regent St.
- (8) Thurston Clark Memorial Bldg. - Queen & Carleton
- (9) Regent Mall - Regent St. Extension

There are at present (December 31, 1976) 124 Sprinkler Systems in the City.

There are in the City as of December 31, 1976, 1,080 Hydrants, broken down in the following areas:

Fredericton South	535
Fredericton North	129
Nashwaaksis	214
Marysville	117
Barker's Point	62
Silverwood	23
TOTAL	1,080
Located on Private Property	<u>90</u>
GRAND TOTAL	<u>1,170</u>

Hydrants were installed at the following locations in 1976:

<u>Location</u>	<u>Number</u>
Abbott Court	1
Vanier Highway	1
Gulliver Drive	1
Montgomery Reservoir Extension	1
Bunker Street	1
Elliot Street	1
Page Street	2
Dykeman Street	2
Wilcox Street	2
Bates Street	2
Regent St. Extension	1
Bird Avenue	1
Silverwood Reservoir	1
Killarney Road	1
Killarney Road Depot	1
Fulton Avenue Extension	1
Lincoln Road	2
Glasier Road	2
	<u>24</u>

Distribution System:

New Services Installed in 1976	282
Old Services Relayed in 1976	24
Frozen Services that had to be Thawed	14

The Fredericton Distribution System Consists of 136.320 miles of Water Main, made up as follows:

LENGTH OF MAINS - MILES

Size	Marysville	Nashwaaksis	Barker's Point	Silverwood	Fredericton	Total
1"	0.989	-	-	-	-	0.989
1 1/4"	-	0.095	-	-	-	0.095
1 1/2"	0.076	0.045	-	-	-	0.121
2"	-	-	-	0.096	-	0.096
3"	-	-	-	-	0.270	0.270
4"	0.468	1.376	-	1.301	6.456	9.601
6"	7.132	12.444	2.379	2.043	33.885	57.883
8"	2.668	9.273	0.530	0.773	19.241	32.485
10"	1.360	3.038	3.208	-	9.999	17.605
12"	0.383	1.038	0.019	-	12.132	13.572
14"	-	-	-	-	0.880	0.880
16"	-	-	-	-	1.588	1.588
18"	-	-	-	-	0.980	0.980
Unknown	0.155	-	-	-	-	0.155
TOTALS	13.231	27.309	6.136	4.213	85.431	136.320

Mileages for Marysville, Nashwaaksis, Barker's Point and Silverwood are approximate only, due to measurement from maps in some instances.

This does not include the water mains installed by the National Defence at the Exhibition Grounds; the University of New Brunswick; St. Anne's Point Barracks on the Woodstock Rd. and the low rental housing development in Fredericton North.

The supply system consists of 0.36 miles of 14" Cast Iron Pipe, extending from the well site at Wilmot Park to the Pumping Station; 0.16 miles of 12" Cast Iron Pipe extending from the well on the south bank of the St. John River on Woodstock Rd. to the well site of #1 Well at Wilmot Park; and 0.10 miles of 15" Steel Pipe extending from the In-take Pier in the St. John River to the Pumping Station. This latter supply had not been used for Domestic Consumption from 1957, until 1974 when power failures caused by the Queen St. fire in March, required the use of the emergency supply.

Following is a list of vehicles used and charged to "Water Ordinary" showing a comparison of repair charges for 1975 and 1976, including tires and tubes:

Name of Vehicle	Year Purchased	1975 Repairs	1976 Repairs
G.M.C. 1/2 Ton #2	1975	\$ 248.79	\$ 993.31
G.M.C. 1/2 Ton #7	1972	379.57	762.47
G.M.C. 1/2 Ton Van #9	1971	1,139.97	751.69
Dodge 1/2 Ton #12	1974	1,239.60	2,056.58
Ford 3/4 Ton #10-73	1974	-	173.21
Miller Welder #91	1971	-	76.28
Ford 1/2 Ton #251	1974	1,271.48	1,646.09
Dodge 1/2 Ton #301	1974	227.58	153.94
Fargo Tanker #302	1953	151.29	101.93
TOTALS		\$ 4,658.28	\$ 6,715.50

The following item of machinery was purchased in 1976 and charged to "Water Ordinary":

1 - Dodge 3/4 Ton Crewcab Pick-up - Asset No. 252-76

Cost	\$ 7,300.00
Extra for 9000#G.V.W.	<u>199.15</u>
Selling Price	7,499.15
Less Trade-in 1964 Ford 1/2 Ton Van #10	<u>1,489.00</u>
	6,010.15
Plus 8% SS&E Tax	480.81
Plus License and Title	<u>6.00</u>
TOTAL COST	\$ 6,496.96

(3) WATER PUMPING STATION:

GROSS EXPENDITURE	\$ 209,291.80
LESS CREDITS	<u>2,019.28</u>
NET EXPENDITURE	\$ 207,272.52

The above expenditure was made up as follows:

City Payrolls for employees at Fredericton Pumping Station (Including Carleton Pumps)	\$ 62,531.56
Labour charged to City Wells	14,213.61
Labour for Well Repairs - Source (Outside Operation)	37,534.02
City Labour for Plant Maintenance	384.61

220,000

200,000

180,000

160,000

140,000

120,000

100,000

80,000

60,000

40,000

20,000

COSTS

1976 TOTAL

1975 TOTAL

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

WATER PUMPING STATION & WELL COSTS - 1975 & 1976

Metric
335-5131

9000

Maintenance of Plant Equipment (By Others)	272.57
Material Charges	88,153.72
City Analyst	3,220.81
Taxes	<u>2,980.90</u>
GROSS EXPENDITURE	\$ 209,291.80
<u>LESS CREDITS:</u>	
Canadian Industries Ltd. (Chlorine Cylinders Returned)	2,000.00
Commercial Leasing Ltd. (Return of 1/2" Check Valve)	<u>19.28</u>
NET EXPENDITURE	\$ 207,272.52

The material cost of \$88,153.72 is made up as follows:

N.B.E.P.C. (Power at Wells)	\$ 52,619.04
N.B.E.P.C. (Power at Plant)	20,367.40
Materials (Wells)	3,890.71
Heating (Plant)	2,156.01
Supplies (Plant)	880.32
Diesel & Lubricants (Plant)	684.67
Workmen's Compensation (Plant)	2,028.00
Miscellaneous (Plant)	854.98
Materials used in Maintenance of Equipment (Plant)	1,091.36
Chlorine for Purification & Treatment	366.93
Chlorinator Parts	449.50
H.T.H. Crystals & Tablets	2,589.14
Other Chemicals for Purification & Treatment	175.66
TOTAL	\$ 88,153.72

Heating:

Following is the yearly consumption and costs of heating of the Fredericton Pumping Station Plant for the last ten years:

Year	Gallons of Furnace Oil	Cost
1967	3,961.7	\$ 539.84
1968	6,121.5	837.63
1969	6,032.6	869.90
1970	5,829.6	840.79
1971	5,125.0	810.45
1972	5,547.0	913.02
1973	4,895.0	961.12
1974	5,774.0	1,836.79
1975	6,076.4	2,132.89
1976	5,737.6	2,156.01

COMPARISON OF WATER PUMPED AND COSTS

FOR FREDERICTON SOUTH (FORMER BOUNDARY) FOR THE LAST TEN YEARS

Year	Imperial Gallons Produced	Production Expenditure	Production Cost Per 1,000 Gallons
1967	688,514,000	\$ 52,749.40	7.9 cents
1968	735,296,000	64,617.14	8.8 cents
1969	730,089,200	69,831.20	9.5 cents

Year	Imperial Gallons Produced	Production Expenditure	Production Cost Per 1,000 Gallons
1970	796,421,300	\$ 72,282.38	9.1 cents
1971	841,712,300	76,827.46	9.1 cents
1972	921,309,300	81,585.18	8.9 cents
1973	941,502,100	81,478.87	8.66 cents
1974	962,420,800	105,320.82	10.94 cents
*1975	1,406,595,940	165,319.34	11.75 cents
*1976	1,420,884,270	207,272.52	15.0 cents

* Production Costs for the entire Amalgamated Area.

The columns in the preceding comparison, showing Imperial Gallons produced, does not include water used from wells in the other sections of the City prior to 1975.

The total amount of water pumped from January 1, 1976 to December 31, 1976 for the entire City was 1,420,884,270 Imperial Gallons divided as follows:

Fredericton South	953,290,000
Fredericton North	135,850,750
Nashwaaksis	169,113,200
*Marysville	105,120,000
Barker's Point	37,481,600
Silverwood	13,486,620
Killarney	6,542,100
TOTAL	<u>1,420,884,270</u>

* No Metering System for Marysville. (Estimated at 200 I.G./Min./Day).

The total net water expenditure (operating) for the City from January 1, 1976 to December 31, 1976 was determined from the following:

Source of Supply	\$ 108,257.38
Power & Pumping	92,723.75
Maintenance of Equipment	1,729.26
Purification & Treatment	1,581.23
Transmission & Distribution (Operation)	33,443.82
Transmission & Distribution (Maintenance)	232,658.75
Other (Taxes & Insurance)	<u>7,467.54</u>
TOTAL	<u>\$ 477,861.73</u>

Therefore, the net operating cost to pump and deliver to the customer 1,000 Imperial Gallons of Water from January 1, 1976 to December 31, 1976 was:

$$\frac{\$ 477,861.73}{1,420,884.27} = \$0.34$$

All the preceding costs shown under "Water Pumping Station" and "Water Ordinary" do not include bond payments or sinking fund charges.

The cost of 1,000 gallons of water delivered including principal and interest is as follows:

Total Net Administration & Operating Costs	\$ 732,234.29
Principal and Interest	<u>697,296.00</u>
TOTAL COSTS	<u>\$ 1,429,530.29</u>

Total Cost of Water per Thousand Gallons:

$$\frac{\$1,429,530.29}{1,420,884.27} = \$1.01$$

Principal and Interest Costs:

$$\frac{\$ 697,296.00}{1,420,884.27} = \$0.49$$

Administration and Operating Costs:

$$\frac{\$ 732,234.29}{1,420,884.27} = \$0.52$$

Following is a table showing a comparison of net operating costs, administration and operating costs, principal and interest costs, and total costs per 1,000 Gallons from 1967 to 1976:

<u>COSTS PER 1,000 GALLONS IN CENTS</u>				
Year	Net Operating	Administration & Operating	Principal & Interest	* Total Cost
1967	18.3	22.3	25.5	47.8
1968	18.9	24.1	24.8	48.9
1969	29.3	36.4	17.7	54.1
1970	19.6	26.2	19.1	45.3
1971	21.2	27.8	22.3	50.1
1972	24.0	30.6	18.3	48.9
1973	18.8	29.3	18.2	47.5
**1974	29.0	42.0	23.0	65.0
**1975	33.0	48.0	27.0	75.0
**1976	34.0	52.0	49.0	101.0 = \$1.01

* Total Cost = Administration & Operating + Principal & Interest

** Values from 1967 to 1973 are for pre-amalgamated City only while values from 1974 to 1976 are for the amalgamated City.

The Water Pumping Station is under the supervision of Plant Supervisor, Mr. George Parker.

(4) HYDRANT REVENUE:

Hydrant Rental for Fire Protection amounted to \$356,400.00 in 1976.

WATER AND SEWER REVENUE - 1976

WATER:

	Net Expenditure	Revenue
Water Pumping Station	\$ 204,291.62	\$ -
Water Ordinary	227,465.40	717,926.84

	Net Expenditure	Revenue
Hydrants	\$ 38,637.17	\$ 356,400.00
Meters	127,462.11	37,697.40
Water Office Administration	97,506.25	-
Salaries	29,404.20	-
Principal & Interest	697,296.00	-
Taxes & Insurance	7,467.54	-
TOTALS	\$1,429,530.29	\$1,112,024.24

Deficit: \$ 317,506.05

DOMESTIC SEWER:

	Net Expenditure	Revenue
Sewerage Domestic	\$ 266,659.97	\$ 609,680.17
Pollution Control - Lincoln	1,951.51	-
F.A.P.C.C. Sewage Treatment	339,347.46	-
Principal & Interest	186,431.00	-
TOTALS	\$ 794,389.44	\$ 609,680.17

Deficit: \$ 184,709.77

Water & Sewer rates were increased approximately 30% in the last quarter of 1976.

Accompanying this Report is the Report of Mr. E. W. Hagerman, City Analyst, on the Fredericton Water Supply from January 1, 1976 to December 31, 1976.

Respectfully submitted,

W. L. Barrett
City Engineer

FREDERICTON WATER SUPPLY

1976

The Saint John River, flowing approximately from West to East, divides greater Fredericton into North and South areas.

For this report it is convenient to divide the north area into five subdivisions as (1) Carleton (originally North and South Devon), (2) Nashwaaksis, (3) Killarney, (4) Barker's Point and (5) Marysville.

FREDERICTON NORTH AREA

Carleton:

The water supply for Carleton is pumped from four (4) wells, Killarney, Carleton, Cliffe and Maple. They have a total capacity of 400 I.G.P.M. These wells, working in various combinations, deliver water to the pipe system and to a 1,000,000 Gallon high level reservoir.

Continuous chlorination at the Killarney pump and Maple at McKeen pump, produces a residual of 0.1 to 0.15 p.p.m. of chlorine in the effluent of the Carleton system.

The Cliffe Street well is used primarily for emergency use.

Nashwaaksis:

The water for this system is pumped from three wells, all situated on Maple Street. Their combined capacity is 520 I.G.P.M. This water is pumped into two high level reservoirs of 300,000 and 320,000 gallon capacities.

Periodic chlorination when required is provided at #1 Well at the intersection of Maple St. and Fulton Ave. A residual of 0.15 to 0.2 p.p.m. of chlorine is maintained at the pump discharge.

A fourth well on Sunset Drive is available for emergency use. The quality of its water is inferior to the other wells, but it is maintained in workable order.

Killarney:

Two wells, K1 & K10, situated on the Killarney Road, were developed in 1976, together with a pipe grid, and a 820,000 gallon concrete reservoir situated near the intersection of the Killarney and Heron Roads.

These wells, with a rated capacity of 150 I.G.P.M. each, and reservoir, were activated in November, 1976, and supply a portion of Killarney Road, together with the Nashwaaksis High Level System formerly supplied through a small booster pump.

Chlorine Equipment is provided at K10 pump for use when required.

Barker's Point:

There are two wells in this system, having a total capacity of 300 I.G.P.M. They pump into a pipe grid and to a high level 250,000 gallon reservoir.

Continuous chlorination is not practised but a gas chlorinator is available for emergency use. Chlorine is added during the spring freshet, when the high water from the Saint John River sometimes finds its way into the wells.

Marysville:

There are three working wells in this system. Their total capacity is 600 I.G.P.M. Water is pumped into the pipe grid and into a high level reservoir made of concrete with a 625,000 gallon capacity (between elevations 220 and 240 the reservoir has a capacity of 250,000 gallons).

Chlorine is not normally used, but a chlorinator is connected for emergency use.

FREDERICTON SOUTH AREA

The area south of the Saint John River includes the original City of Fredericton and the urban sprawl around it, including Silverwood.

Water for Fredericton South is pumped from four gravel wall wells, three in Wilmot Park and one on the nearby river bank, and a rock well (Hanwell) located on the Hanwell Road.

The gravel wells were developed as follows: No. 1 in 1955; No. 3 in 1960; No. 4 in 1961; and No. 5 in 1969. Hanwell well was drilled in 1967.

Number 4 well has decreased in production but no changes are apparent in the others to date.

The demand from these wells vary. They are worked single or multiple depending on the variations in the system demand.

None of the raw waters from Wells 1, 3, 4 or 5 have shown positive results in coliform tests but as a safeguard, chlorine is added to the raw influent from the wells as it flows into the 400,000 gallon holding reservoir at the Queen Street pumping station.

Sufficient chlorine is added to produce a residual of from 0.1 to 0.15 p.p.m. of free chlorine in the water going to the consumer.

Hanwell well is a rock well in Cameron Court near its junction with Hanwell Road. It pumps to a high level reservoir of 100,000 gallon capacity.

The water from this well is satisfactory, chemically, but occasionally shows coliform and mould growth in unchlorinated samples.

Continuous chlorination is practised at this pump and chlorine residuals vary from 0.1 to 0.15 p.p.m.

Silverwood situated 7± miles up river from Fredericton (former) has two rock wells. Their capacities are 3 and 20 I.G.P.M. They deliver water to a reservoir of 50,000 gallon capacity. A third well exists 100 yds.± above the reservoir. Its capacity is 8± I.G.P.M. Normally, chlorination is not practised but a portable chlorinator (liquid) is on hand.

A new well situated some 3,000 feet from the Silverwood Reservoir was developed in 1976. Temporary pumping was installed and used from August to November, when a permanent pipe line and pump were installed.

This pump is now producing a capacity of 85 I.G.P.M. as required, to maintain reservoir storage.

Some 57 samples of water were tested for the coliform group of bacteria and with the exception of samples from Hanwell well on October 9; 206 Willow Ave. on November 8; Marysville #3 Pump on January 5; Marysville #3 well on March 3; and Silverwood #1 well on March 15, the coliform tests were negative throughout the City.

Following are lists of chemical tests made on water samples in 1976 and also the results of bacteriological tests on water samples for the presence of the coliform group.

(Sgd.) E. W. Hagerman
CITY ANALYST

Extracts from United States Treasury Standards

Applicable to Fredericton Water Supply

- (1). A minimum sample of 100 milliliters is collected.
- (2). Five 10 milliliter portions of the 100 milliliter sample are tested.
- (3). Primary plantings are made in Lactose Broth.
- (4). Portions forming gas in Lactose Broth are confirmed in 2% Brilliant Green Bile.

APPLICATION OF TEST

- (1). Of all the 10 milliliter portions examined per month, not more than 10% shall show positive. (ie. make gas).
 - (2). When less than 20 samples per month are examined, one sample may show three positive portions.
 - (3). Using a standard sample of five 10 milliliter portions, provides for an estimation of the MOST PROBABLE NUMBER (M.P.N.) of Coliform bacteria per 100 milliliter of sample as shown in the table below.
-

Negative Positive When five 10 milliliter portions are tested.

5	0	Less than 2.2 organisms per 100 is the MPN.
4	1	2.2 organisms per 100 is the MPN.
3	2	5.1 organisms per 100 is the MPN.
2	3	9.2 organisms per 100 is the MPN.
1	4	16 organisms per 100 is the MPN.
0	5	More than 16 organisms per 100 is the MPN.

FREDERICTON WATER SUPPLY
TESTS FOR COLIFORM BACTERIA -- 1976

The test divides 5 portions of the sample into Plus and Minus results, Plus=Coliform present, Minus=Coliform absent. Using these results, with the table, as shown above, gives the M.P.N. (Most Probable Number) of Coliform organisms per 100 milliliter sample.

FREDERICTON SOUTH (1976)

Date of Sample	Origin of Sample	No. of - +	M.P.N. Per 100 ml	N.B. - Sign Means Less Than 2.2 Organisms Per 100 ml of sample
January 21	Smythe St. Res. (Addition)	5 0	-2.2	
June 11	#1 Well	5 0	-2.2	
11	#3 Well	5 0	-2.2	
11	#4 Well	5 0	-2.2	
11	#5 Well	5 0	-2.2	
14	#9 Chandler Dr. Flemming Res. Area	5 0	-2.2	
22	#708 Fenety St.	5 0	-2.2	
July 20	#5 Well, Raw (No Chlorine)	5 0	-2.2	
22	Hanwell Well (Raw)	5 0	-2.2	
August 25	Hanwell Well (Raw)	5 0	-2.2	
30	Hanwell Well (Raw)	5 0	-2.2	
September 4	Hanwell Well (Raw)	5 0	-2.2	
15	Hanwell Well (Raw)	5 0	-2.2	
24	Hanwell Well (Raw)	5 0	-2.2	

FREDERICTON WATER SUPPLY
TESTS FOR COLIFORM BACTERIA
1976
FREDERICTON SOUTH

Date of Sample	Origin of Sample	No. of - +	M.P.N. Per 100 ml	N.B. - Sign Means Less Than 2.2 Organisms Per 100 ml of Sample
October 1	Hanwell Well (Raw)	5 0	-2.2	
8	42 Foley Ct.	5 0	-2.2	
9	Hanwell Well (Raw)	4 1	+2.2	
17	Hanwell Well (Raw)	5 0	-2.2	
November 1	New Montgomery Reservoir	5 0	-2.2	Reservoir Just Completed,
8	New Montgomery Res.	5 0	-2.2	Chlorine Washed and
22	Steel Montgomery Res.	5 0	-2.2	Ready to go into Use
December 7	Tractors & Equipment Mens Washroom (Oil Spots)	5 0	-2.2	
7	Hilton Rd. Kasper & Richter	5 0	-2.2	
13	Tractors & Equipment	5 0	-2.2	

CARLETON

Date of Sample	Origin of Sample	No.	M.P.N.	N.B.	- Sign Means Less of Per 100 ml	Than 2.2 Organisms Per 100 ml of Sample
		-	+			
December 14	Well K10 Killarney Road	5	0	-2.2		

FREDERICTON WATER SUPPLY
TESTS FOR COLIFORM BACTERIA
1976
NASHWAAKSIS

Date of Sample	Origin of Sample	No.	M.P.N.	N.B.	- Sign Means Less of Per 100 ml	Than 2.2 Organisms Per 100 ml of Sample
		-	+			
Jan. 26	#209 Fulton Ave.	5	0	-2.2		
Feb. 13	#115 McAdam Ave.	5	0	-2.2		
Mar. 2	#4 Shibu Ct.	5	0	-2.2		
Mar. 3	#31 Clearview Ave.	5	0	-2.2		
Mar. 12	#108 Gorham Dr.	5	0	-2.2		
Apr. 7	#251 Sunset Dr.	5	0	-2.2		
Apr. 13	#202 Fulton Ave.	5	0	-2.2		
Apr. 13	#213 Fulton Ave.	Sand	Like			P.P.T. in Eff. + HCL → CO_2 = Carbonate
Apr. 23	#4 Well Sunset Dr.	5	0	-2.2		
May 6	#3 Well (Some Turbidity)	5	0	-2.2		
May 21	#4 Shibu Ct.	5	0	-2.2		
June 11	#7 Shibu Ct.	5	0	-2.2		
July 23	#15 Shibu Ct.	5	0	-2.2		
Aug. 10	#7 Calder Ave.	5	0	-2.2		
Oct. 28	#278 Barton Cres.	5	0	-2.2		
Nov. 8	#206 Willow Ave.	4	1	+2.2		
Nov. 20	#206 Willow Ave.	5	0	-2.2		No Coliform, But Water Turbid

BARKER'S POINT

Mar. 2	#1 Well (Sample From Air Valve)	5	0	-2.2	
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MARYSVILLE

Jan. 5	#3 Pump From Air Relief Valve)	2	3	+9.2	
Jan. 20	#3 Pump As Above	5	0	-2.2	
Jan. 20	#3 Header Before the Discharge Gate	5	0	-2.2	
Feb. 12	#3 From Header	5	0	-2.2	
Feb. 12	#3 Well	5	0	-2.2	
Mar. 3	#3 Well (Tap on Meter)	0	5	+16.0	Non-Sterile Bottle
May 10	#3 Well (Tap on Meter)	5	0	-2.2	
May 10	#3 Well (Tap on Meter)	5	0	-2.2	

FREDERICTON WATER SUPPLY
TESTS FOR COLIFORM BACTERIA
1976
SILVERWOOD

Date of Sample	Origin of Sample	No. of - +	M.P.N. Per 100 ml	N.B. - Sign Means Less Than 2.2 Organisms Per 100 ml of Sample
January 9	#34 Hummingbird St.	5 0	-2.2	
March 6	#1 Well	5 0	-2.2	Mould Caps
15	#1 Well	4 1	+2.2	Mould Caps
22	#1 Well	5 0	-2.2	Mould Traces
September 11	#4 Well	5 0	-2.2	
December 2	#3 Well	5 0	-2.2	

CHEMICAL 1976

Location	Date	Ph	Alk.	Hard.	Fe	Mn.	Cl	Q I.G.M.
	1976	Units = Parts Per Million						
Silverwood #1	Mar. 10	8.1						
Silverwood #1	Mar. 22	7.8	246	500				
Silverwood #1	Mar. 24	7.7	212	410			22.2	4.0
Silverwood #2 T.W.	Apr. 20	7.5	103	110	.03	Nil	3.9	
Silverwood #2 T.W.	Apr. 22	7.7	104	102	.07	Nil	4.0	
Silverwood #2 T.W.	Jun. 9	7.9	84	92	.01	Nil	4.2	
Silverwood #2 T.W.	Jun. 10	7.9	84	89	.03	Nil	2.7	
Silverwood #2 T.W.	Jun. 12	7.8	83	90	.01	Nil	4.0	
Hanwell Well	July 22	7.1	85	73	.03	Nil	23.0	
#4 Park Well	July 29	7.1	72	107	.01	.05	17.0	
K10 Well	Dec. 9	7.3	72	70	.01	Nil	2.5	
* Plant Effluent	Dec. 9	7.0	61	78	.01	.07	16.0	
Saint Mary's Well	Dec. 9	7.0	80	96	.05	0.15	10.0	
* Queen St.								
T.W. - Test Well								