

TABLE I

SAMPLE EXAMINATION OF ONE MATURE RESIDENTIAL AREA (By Neighbourhood Study Area)

	Source	Number of Persons	Description of Operation	Hourly Wages Of Staff \$	Number of Man Hours	Cost of Obtaining Data \$
1.	Mailing Address of Each Property	1 Planning Assistant(1)	Pulling out of Assessment cards and transferring information onto a prepared table.	3.10	13	40.30
2.	Name of Owner of Each Property	1 Planning Assistant(1)	Ditto	3.10	13	40.30
3.	Building Condition	1 Planning Assistant(1)	Ditto	3.10	14	43.40
4.	Ditto	2 Planning Assistant(3)	A one day combined driving and walking survey of external appearance of buildings.	5.29	14	74.06
5.	Number of Single Family Dwelling Units	1 Planning Assistant(1)	Pulling out of Assessment cards and transferring information onto a prepared table.	3.10	14	43.40
6.	Number of Two Family Dwelling Units	1 Planning Assistant(1)	Ditto	3.10	14	43.40
7.	Total Number of Apartment Units	1 Planning Assistant(1)	Ditto	3.10	14	43.40

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 COUNCIL MEETING Aug. 9/71

TABLE 1 (continued)

	Source	Number of Persons	Description of Operation	Hourly Wages Of Staff \$	Number of Man Hours	Cost of Obtaining Data \$	
8.	Number of Low Density Apartment Units	Planning	1 Planning Assistant(3)	Examination of list kept by the Planning Department and updating if necessary. Transfer of information onto a prepared table.	5.29	1/3	1.76
9.	Number of Medium Density Apartment Units	Planning	1 Planning Assistant(3)	Ditto	5.29	1/3	1.76
10.	Number of High Density Apartment Units	Planning	1 Planning Assistant(3)	Ditto	5.29	1/3	1.76
11.	Year Building Was Built	Assessment	1 Planning Assistant(1)	Pulling out of Assessment cards and transferring of information onto a prepared table.	3.10	14	43.40
12.	Type of Construction	Assessment	1 P. A. (1)	Pulling out of Assessment cards and transferring of information onto a prepared table.	3.10	14	43.40
13.	Number of Floors	Assessment	1 P. A. (1)	Ditto	3.10	14	43.40
14.	Gross Floor Area of Building	Assessment	1 P. A. (1)	Ditto	3.10	14	43.40

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TABLE 1 (continued)

	Source	Number of Persons	Description of Operation	Hourly Wages Of Staff \$	Number of Man Hours	Cost of Obtaining Data \$	
15.	Population*	Planning	1 Planning Assistant(3)	Multiplication of the different kinds of dwelling units previously calculated by the appropriate estimated average ratio of persons per unit. Transfer information onto prepared table.	5.29	1	5.29
16.	Zoning	Planning	1 Planning Assistant(3)	Listing of properties by legal description, and identification of same on legal property maps. Identification of zoning by comparison with zoning maps. Transfer of information onto prepared table.	5.29	35	185.15
17.	Parcel Acreage	Assessment	1 Planning Assistant(1)	Pulling out of Assessment cards and transferring of information onto a prepared table.	3.10	14	43.40
18.	Building Use (By Floor)	Assessment	1 Planning Assistant(1)	Ditto	3.10	14	43.40
19.	Assessed Value	Assessment	1 P. A. (1)	Ditto	3.10	14	43.40
20.	Land Use	Planning	1 Planning Assistant(3)	Identification of properties by legal description on legal maps. Identification of land use by comparison with land use maps. Transferring of information onto prepared table.	5.29	35	185.15

*However when 1971 census material is available the coincidence of census tracts and enumeration areas with study areas will make this census data readily obtainable.

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TABLE 1 (continued)

	Source	Number of Persons	Description of Operation	Hourly Wages Of Staff \$	Number of Man Hours	Cost of Obtaining Data \$
21.	Neighbourhood Study Area	1 Planning Assistant(3)	Assuming only one neighbourhood study area was involved the time involved would be nominal for this operation.	N/A	-	-
22.					266	1,012.00
					Rounded off to:-	1,913.00

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APPENDIX II

ITEM 30

MANAGER'S REPORT NO. 49

COUNCIL MEETING Nov. 9/71

SAMPLE OF ONE ELEMENTARY SCHOOL PROPERTY ACQUISITION STUDY
(BY SCHOOL CATCHMENT AREA)

The following is a list of the data needed for the study of a hypothetical school catchment area to determine the amount of additional school property which should be acquired. (Refer to accompanying Table II.)

The list also contains estimates of the source, the number of persons, the number of hours and the labour cost of obtaining the required data under present practice.

For the purposes of the example it has been assumed that the school catchment area contains about 800 single and two family dwelling units and 150 apartment units, for a total of about 950 dwelling units.

It has been further assumed, following discussion with Mr. Chilton, that an average of three such studies per year will be undertaken over the next 8 years.

The number of cards to be pulled from the Assessment files have been assumed to be about 900, the same as for the residential area study. The number of items of data to be obtained from the Assessment cards is only three as opposed to thirteen in the case of the residential study but since the time taken to search for and extract each card will be the same it has been assumed that the Assessment information would be obtained in half the time taken for the residential study. The total time has then been divided equally between each of the required items of Assessment data.

The cost of preparing the report following receipt of the data, typing the report, and mapping, have been intentionally omitted from the estimates since this work would have to be undertaken regardless of the method or speed with which the data is obtained. Also the cost of stationary, etc. is not included since this would be only nominal.

From reference to Table 2. it may be seen that the cost of obtaining the data for one typical study would be \$792. On the basis of an assumed three studies per year over 8 years the cost would be \$19,008, say \$19,000, using present procedures.

The time taken to obtain the data is 178 man hours for one study and 4,272 hours over an 8 year period.

TABLE II

SAMPLE OF ONE ELEMENTARY SCHOOL PROPERTY ACQUISITION STUDY (By School Catchment Area)

	Source	Number of Persons	Description of Operation	Hourly Wages Of Staff \$	Number of Man Hours	Cost of Obtaining Data \$	
1.	Number of Single Family Dwelling Units	Assessment	1 Planning Assistant(1)	Pulling out of Assessment cards and transferring information onto a prepared table.	3.10	30	93
2.	Number of Two Family Dwelling Units	Assessment	1 Planning Assistant(1)	Ditto	3.10	30	93
3.	Total No. of Apartment Dwelling Units	Assessment	1 Planning Assistant(1)	Ditto	3.10	30	93
4.	Number of Low Density Apartment Units	Planning	1 Planning Assistant(3)	Examination of list kept by the Planning Department and updating if necessary. Transfer of information onto a prepared table.	5.29	1/3	1.75
5.	Number of Medium Density Apartment Units	Planning	1 Planning Assistant(3)	Ditto	5.29	1/3	1.75
6.	Number of High Density Apartment Units	Planning	1 Planning Assistant(3)	Ditto	5.29	1/3	1.75

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TABLE II (continued)

	Source	Number of Persons	Description of Operation	Hourly Wages Of Staff \$	Number of Man Hours	Cost of Obtaining Data \$
7.	Population	1 Senior Planner	Calculation by multiplying the different kinds of dwelling units previously calculated by the appropriate estimated average ratio of persons per unit. Transfer information onto prepared table and include population increases estimated for development of vacant land.	8.68	7	60.76
8.	No. of Children Elementary School Age.	1 Senior Planner	Calculation by multiplying the different kinds of dwelling units by determined ratios of children per unit. Following an estimate of the number of different kinds of units which are expected to be developed on vacant land within the forecast period, a calculation of the number of school children will then be obtained by again applying appropriate ratios.	8.68	7	60.76
9.	Vacant Land	1 Planning Assistant(3)	Calculation of the amount of vacant land to be developed residentially within the forecast period by reference to community plans, and by using legal map measurements where land acreage is already calculated and a planimeter when it is not.	5.29	3	15.87
10.	Zoning	1 Planning Assistant(3)	Listing of properties by legal description and identification of same on legal property maps. Identification of zoning by comparison with zoning maps. Transfer of information on to prepared table.	5.29	35	185.15

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TABLE II (continued)

	Source	Number of Persons	Description of Operation	Hourly Wages Of Staff \$	Number of Man Hours	Cost of Obtaining Data \$
11.	Land Use	Planning 1 Planning Assistant(3)	Identification of properties by legal description on legal maps. Identification of land use by comparison with land use maps. Transferring of information onto prepared table.	5.29	35	185.15
12.	School Catchment Area	School Board 1 Planning Assistant(3)	The time involved is nominal.	N/A	-	-
13.					178	792.00
					Rounded off to:-	792.00

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COUNCIL MEETING Nov. 9/71

EXPLANATION OF THE COSTS AND TIME TO OBTAIN DATA USING THE UPGRADED EQUIPMENT.

Consideration was given as to whether 'start up' costs should be included in the calculations, that is the costs of digging up all the required data and entering it into the data bank; however, though this cost would certainly be a significant one, it would be extremely difficult, if not impossible, to measure because the data needed in the sample studies is only a part of a large number of other items of data which will have to be entered into the information system on a gradual basis. And so we have decided to omit the costs of entering the data into the system and assume for our purposes at this time that the required data has already been entered into the data bank. (1)

We wrote to the Data Processing Division, told them to make the above assumption and asked them to estimate the cost of providing the data for each of the two studies if the upgraded equipment were used. (2) The required data was listed on the two application forms on the following two pages. "Application No. 1" is the data required for the mature residential area study and "Application No. 2" is the data required for the school property acquisition study.

(1) It is hoped to minimize costs by using student labour for this during summer months. Also, application is being made for two students to work for three months on this project in 1971 under the "Opportunity for Youth" Program, which is financed by the Federal Government.

(2) Letter of April 1, 1971 from Director of Planning to Data Processing Supervisor entitled "Electronic Data Processing".

With the required data the system let us assume that, for two applications, the Planning Department sends to the Data Processing Department the following Data Request Application forms:-

APPLICATION DESCRIPTION FORM	
Application No. 1.	ITEM 39 MANAGER'S REPORT NO. 49 COUNCIL MEETING Aug. 9/71
A.	<p>Within Neighbourhood Study Area No. 1 list each parcel of land and list the items of data keyed to each parcel.</p> <p style="margin-left: 40px;">(1) Parcel no. (2) Name and address of each property (3) Name of owner of each property (4) Building condition of each building (5) Year each building built (6) Type of construction of each building (7) Number of floors within each building (8) Gross Floor Area of each building (9) Zoning (10) Parcel acreage (11) Building use, by floor (12) Assessed value of each building (13) Land use classification</p>
B.	<p>Within Neighbourhood Study Area No. 1 also list the following:-</p> <p style="margin-left: 40px;">(1) Number of single family dwelling units (2) Calculation of population in single family units.* (3) Number of two family dwelling units (4) Calculation of population in two family dwelling units (5) Number of low density apartment dwelling units (6) Calculation of population in low density apartment dwelling units (7) Number of medium density apartment units (8) Calculation of population in medium density apartment dwelling units (9) Number of high density apartment dwelling units (10) Calculation of population in high density apartment dwelling units (11) Total number of apartment dwelling units (12) Total population</p>
PURPOSE:	To determine the extent to which neighbourhood study area no. 1 is suitable and ready for redevelopment in the form of apartments or commercial facilities.
USERS:	Planning Department

*For calculation of population for the different kinds of units it is assumed that the Data Processing Department would be supplied with the appropriate population/dwelling unit ratios.

APPLICATION DESCRIPTION FORM

Application No. 2.

A. Within School Catchment Area No. 1 list the following items of data keyed to each parcel:-

APPLICATION REQUEST: (1) Parcel no.
(2) Zoning
(3) Land Use Classification

B. Within School Catchment Area No. 1 list also the following items:-

APPLICATION REQUEST: (1) Number of single family dwelling units
(2) Calculation of population in (1)*
(3) Calculation of number of elementary school children in (1)*
(4) Number of two family dwelling units
(5) Calculation of population in (4)
(6) Calculation of number of elementary school children in (4)
(7) Number of low density apartment units
(8) Calculation of population in (7)
(9) Calculation of number of elementary school children in (7)
(10) Number of medium density apartment units
(11) Calculation of population in (10)
(12) Calculation of number of elementary school children in (10)
(13) Number of high density apartment units
(14) Calculation of population in (13)
(15) Calculation of number of elementary school children in (13)
(16) Total number of apartment dwelling units
(17) Total population
(18) Total number of children of elementary school age
(19) Total acreage of vacant land

PURPOSE: To determine the property which should be acquired within school catchment area no. 1 in order to accommodate anticipated additions in school population.

USERS: Planning Department

*For the calculation of the population and numbers of children in the different kinds of units it is assumed that the Data Processing Department will be supplied with the appropriate ratios.

Following the letter to Data Processing a discussion was held to agree upon estimates of the likely maximum number of digits which should be allowed for each required item of information on the application forms.

The Data Processing Division then regrouped all the items of data required by planning into new groups which provided a basis for estimating the time which would be needed to read the tapes, make some calculations, and print the data. (1)

We have not included in our overall comparison study the total estimated cost of \$800 for setting up programs for both of the two study types. This would be substantially a one time initial cost, because once set up the programs could be used over the 8 year period with minor changes as necessary.

Lastly, it should be emphasized that for the purposes of this Cost Savings Study the Data Processing Division took a very conservative approach. They assumed that for each required tape reading that the information would be at the end of the tape. Had it been assumed that the needed data was on the average half way down each tape then the tape reading costs would be halved. Several other assumptions have been made, which together with the former one allow for the worst possible conditions of operation. In other words if all went well the cost and time savings would be appreciably higher.

The Data Processing Division's Study estimates that the data for each study would take about 78 minutes to complete and would cost about \$91. There would be no significant difference between the two types of studies. The total cost for STUDY I over 8 years would be $91 \times 8 = \$728$. The total cost for STUDY II over 8 years would be $8 \times 3 \times 91 = \$2,184$. The total time for STUDY I over 8 years would be $78 \times 8 = 624$ minutes = 10 hours 24 minutes, or about 10 hours. The total time for STUDY II would be $78 \times 8 \times 3 = 1,872$ minutes = 31 hours 12 minutes, or about 31 hours.

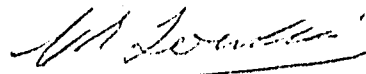
COMPARISON OF COSTS USING PRESENT PROCEDURES AND COSTS USING UPGRADED EQUIPMENT.

For cost comparisons refer to the "SUMMARY OF FINDINGS" at the beginning of this report.

CONCLUSION

In conclusion, this Cost Comparison Study serves to further emphasize the very real benefits to the Planning Department which the upgraded equipment would provide. These cost benefits should be considered together with other benefits, some of which are not quantifiable but all of which are very real, as outlined in my submission of December 4, 1970 to Alderman Mercier.

I hope that this, along with the submissions from the other departments, will be sufficient to justify the acquisition of the upgraded equipment.



for A. L. Parr,
DIRECTOR OF PLANNING.
(Per) C. R. Lowther,
PLANNER II.

CRL:bp

(1) The technical details are fully shown in the letter of April 13, 1971 from the Data Processing Supervisor to the Planning Director, entitled "EDP Cost Savings Study".

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COUNCIL MEETING Aug. 9/71

39. Re: Electronic Data Processing.

Attached you will find a copy of a report dated August 4, 1971, from the Treasurer addressed to the Manager regarding the above, the contents of which are self-explanatory.

The Manager concurs in the recommendations made therein. The report is submitted at this time with the thought that Council should review it over the next two weeks and then discuss it in detail at the meeting of August 23, 1971, at which time the Treasurer will be present.

If there are any specific questions that any member of Council wishes to ask at this time, we will submit the answers at the next meeting of Council. Perhaps if questions come up over the next two weeks, the member of Council concerned could telephone the question to the Manager who could then have the answer available for the next meeting. The time is getting close when some decisions must be made on this subject.

RECOMMENDATION:

THAT the matter be tabled for two weeks.

ITEM 39
MANAGER'S REPORT NO. 49
COUNCIL MEETING Aug. 9/71

THE CORPORATION OF THE DISTRICT OF BURLINGTON

INTER-OFFICE COMMUNICATION

TO: Municipal Manager
FROM: Municipal Treasurer
SUBJECT: ELECTRONIC DATA PROCESSING

DEPARTMENT:
DEPARTMENT:

RECEIVED

AUG - 4 1971

MUNICIPAL MANAGER'S
OFFICE

DATE: 4 August, 1971

CJR FILE # D1

YOUR FILE #

On 15 February, 1971, Council endorsed in principle:

- "(a) the proposed applications for the Electronic Data System set out in general in various reports submitted by the Municipal Treasurer and as more specifically mentioned in reports the Assessor, Planning Director and Engineer have prepared under dates of November 30, 1970, December 4, 1970 and December 11, 1970, respectively.
- (b) a proposal to expand the existing system, using equipment of IBM rather than any different supplier.

The Council directed that implementation of the above two matters and related equipment purchase arrangements be held in abeyance until 8-year cost savings anticipated by such implementation are summarized for Council with respect to at least one of the major suggested applications for each of the three departments mentioned earlier.

The Council also agreed to consider the immediate appointment of an inter-municipal committee to report on the feasibility of establishing a Regional Municipal Data Processing Centre, either at the present time, within the next 5 years or within the next 10 years, with members of the committee to be one Council member and one staff member from each of the participating municipalities."

It has taken a great deal of time to complete the studies asked for, especially by the Engineering Department, which has had a greater than usual work load this year caused by Federal-Provincial loan funds.

The chief purpose of upgrading the E.D.P. installation is to acquire the extraordinary power of tapes and discs. These devices permit data to be rapidly located and assembled for use, and permit tasks to be performed that take too much time to do with punch cards. For example, if it is desired to study data concerning properties in a twelve block area, with a card system, the cards must be removed from the files by hand, a task that will take many hours. With tapes, the information may be extracted in minutes. Unlike a card system, a tape system may have information extracted from it without disturbing the information in the tape, which may be put to immediate use for some other purpose, whereas a card file must remain dormant until the extracted cards are returned.

This makes it possible to undertake many tasks that are much too expensive to perform by hand or by card oriented methods.

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MANAGER'S REPORT NO. 49
COUNCIL MEETING Aug. 9/71

TOWN CORPORATION OF THE DISTRICT OF BURNABY

INTER-OFFICE COMMUNICATION

TO: Municipal Manager

DEPARTMENT:

DATE: 4 August, 1971

FROM: Municipal Treasurer

DEPARTMENT:

OUR FILE # D1

SUBJECT: ELECTRONIC DATA PROCESSING

YOUR FILE #

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The Assessor's example of such an application is called Multiple Regression Analysis, a system of assessing that is rapidly gaining favour in the United States. His report is attached.

A much more detailed study was prepared by the Planning Director and gives two examples of much used studies prepared by his office. His report is attached.

A careful examination was made by the Municipal Engineer. There are many areas in which data processing may be used by an engineering department, but the conclusion has been reached that Burnaby has not yet developed to the point where volume of work will warrant the expenditure insofar as the Engineering Department needs are concerned. The Engineer's comments are attached. From these I conclude that the example shown would cost a total of \$3,110 at today's wage rates for labour by hand methods over eight years, whereas by data processing, it would cost only \$643.

Related to 30,000 residences, and using American experience and American costs as a guide, the indicated savings in the Assessment Department example over eight years is \$207,000.

The two examples given by the Planner show a savings of \$24,200. Since there are many such studies made by the Planning Department, the indicated savings are many times more than this.

We are not surprised that Engineering has little use, other than accounting, for the upgraded equipment at this time.

Equipment

The current installation is a 360 Model 20 computer, manufactured by the International Business Machines, together with peripheral equipment.

If no change had been planned for 1971 by the addition of the proposed equipment, the 1971 budget for data processing would have been:

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THE CORPORATION OF THE DISTRICT OF BRIMLEY

INTER-OFFICE COMMUNICATION

TO: Municipal Manager	DEPARTMENT:	DATE: 4 August, 1971
FROM: Municipal Treasurer	DEPARTMENT:	OUR FILE # D1
SUBJECT: ELECTRONIC DATA PROCESSING		YOUR FILE #

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Salaries	\$ 82,055
Employee Benefits	8,206
Minor office equipment	240
Supplies	7,700
Equipment rentals (peripheral equipment)	6,305
Installment purchase and maintenance (computer)	<u>27,153</u>
	<u>\$131,659</u>

The 1971 budget, as approved by Council, totals \$140,000 and anticipates the proposed changes taking effect 1 November, 1971. Hereinafter, in this report, the figures shown will relate only to the computer.

Currently, the computer is being purchased on an installment purchase plan. It will be paid for by September, 1973. Including maintenance, the cost for the eight year period, November, 1971 to October, 1979, will be \$66,689.

Our proposal is to continue the purchase plan on the multi-function card machine and the printer, and relinquish the contract on the central processing unit. We would acquire a new processing unit, (IBM Model 2020, Sub-model 5), two tape drives, (IBM Model 2415) and a disc drive, (IBM Model 2311, or equivalent of another manufacturer).

A rental purchase contract and maintenance contract for the above described equipment, including the continuation of the rental purchase agreement as recommended, would cost a total of \$359,798. Substituting a Telex 5311 disc drive would bring this cost down to \$324,762.

There are now a number of companies manufacturing equipment to be used in conjunction with IBM central processors. Their prices are very competitive, and in the case of a disc drive, the Telex Ltd. offer a disc unit with a purchase cost of \$15,000 as compared with \$24,360 for IBM.

Alternatively, an arrangement may be entered into with the Royal Bank of Canada, wherein they will undertake to finance the new acquisitions over 5 years, at 7.5% interest. If this is taken advantage of, the purchase-rental-maintenance figure of \$359,798 may be reduced by \$76,603, to \$283,195, at the expense of higher payments in the first five years, or the \$324,762 alternate including Telex by \$57,512, to \$267,250.

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THE CORPORATION OF THE DISTRICT OF BURNABY

INTER-OFFICE COMMUNICATION

TO: Municipal Manager	DEPARTMENT:	DATE: 4 August, 1971
FROM: Municipal Treasurer	DEPARTMENT:	OUR FILE # DL
SUBJECT: ELECTRONIC DATA PROCESSING		YOUR FILE #

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Over the next eight years, it is proposed that we increase our computer purchase-rental and maintenance costs by \$293,109, if the IBM-Telex plan is followed, or by \$200,561, if the Bank-Telex plan is followed, or an average per annum of \$36,638, or \$25,070, as the case may be. This sum of money represents the salaries of 4.1 or 2.8 Clerk III's, as the case may be, 3.1 or 2.2 realty appraisers, or 5.9 or 4 planning assistants, as the case may be.

It is not suggested that the new installation will replace these people. Simply that the extra cost represents the salaries at present rates of a number of people who would otherwise be engaged, if it were not for the computer. In any event, several of the operations planned for the computer would be too expensive to undertake by hand methods, and furthermore, the existing plant is operating to capacity on a one shift basis, and running into a second shift.

In the event Council accepts the recommendation to install the upgraded equipment, the choice between the IBM-Telex plan and the Bank-Telex plan depends on whether or not there is any possibility of a regional data centre becoming operational before 31 October, 1976 - 5 years. This is the period of time in which the capital costs would be repaid, if financed by the bank.

If the IBM-Telex plan is followed, the contracts may be cancelled at any time. However, in the Bank-Telex plan, the bank contract must be paid up if the equipment is to be disposed of. The Telex contract may be cancelled at any time. The purchase portion of their agreement runs for only three years.

Target date for installing the new equipment is 1 November, 1971. IBM will have equipment available for our use at that time. We are under no obligation to accept this equipment in the event Council does not wish to proceed at this time.

Committee on the Feasibility of a Regional Municipal Data Centre

The following is the response received to the Municipal Clerk's invitation to the regional municipalities to participate in the above.

<u>Municipality</u>	<u>Council Appointee</u>	<u>Staff Appointee</u>
Burnaby	Ald. D.M. Mercier	Bart McCafferty, Treasurer
Richmond	Ald. G.J. Blair	G.H. Carrol, Treasurer
Delta	Declined to participate	
New Westminster	Letter acknowledged	
North Vancouver City	Ald. J.A.W. Snowick	D.A. Moulding, Treasurer

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ITEM 39
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 COUNCIL MEETING Aug. 9/71

THE CORPORATION OF THE DISTRICT OF BURNABY

INTER-OFFICE COMMUNICATION

TO: Municipal Manager DEPARTMENT:
 FROM: Municipal Treasurer DEPARTMENT:
 SUBJECT: ELECTRONIC DATA PROCESSING

DATE: 4 August, 1971

OUR FILE # DL

YOUR FILE #

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<u>Municipality</u>	<u>Council Appointee</u>	<u>Staff Appointee</u>
North Vancouver District	No appointee	N.E. Woodard, Director of Financial Services
City of Coquitlam	Mayor J.M. Campbell	G.F. Forcier, Treasurer
Port Moody	Declined to participate	Val Dong, Treasurer
District of Coquitlam	Ald. C.W. McKenzie	G. McKittrick -
Surrey	Ald. J.B. Wallace	Municipal Manager
Vancouver	Ald. E. Broome	R. Hawkins, Co-ordinator of Data Processing
West Vancouver	Ald. J. Dowling	E.G. Bairnes, Municipal Manager
G.V.R.D.	No appointee	J. McLean, Assistant Treasurer

Recommendations

That Council authorize the acquisition of an IBM Central Processor, Model 2020, Sub-model 5, and a Model 2415 Tape Drive, and a Telex Model 5311 Disc Drive, with the provision that if the Telex equipment does not prove satisfactory within three months, the IBM unit be substituted.

At the time of writing this report, another disc drive is appearing on the market. It is put out by Ampex Ltd. Both Ampex and Telex equipment are being examined by the City of Vancouver, Data Processing Department, and in the event their findings favour Ampex, authority should be given the Treasurer to substitute Ampex for Telex, provided the cost structure is the same or better. Both companies guarantee maintenance for at least eight years.

The type of financing to be selected depends on whether or not there is a likelihood that a Regional Municipal Data Processing Centre will become operational before October, 1976. The feelings of the delegates to the special committee will not be known before they have had a chance to meet. However, indications are that only Vancouver, Burnaby and Surrey have expressed interest in such a proposition - three big users of automated data. The others either have offered no comment, or have indicated no interest.

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COUNCIL MEETING Aug. 9/71

THE CORPORATION OF THE DISTRICT OF BURNABY
INTER-OFFICE COMMUNICATION

TO: Municipal Manager DEPARTMENT: DATE: 4 August, 1971
FROM: Municipal Treasurer DEPARTMENT: OUR FILE # D1
SUBJECT: ELECTRONIC DATA PROCESSING YOUR FILE #

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In any event, the equipment will have a residual value and quite likely can be sold to a leasing company at marked down prices; probably equal to the balance that may be owing at the bank, at that point in time.

Under the circumstances, it is recommended that the equipment be acquired through the bank, and Telex or Ampex as the case may be, with the clear undertaking that, this should not impede Burnaby from joining a Regional Municipal Data Centre if same should become operational after three years have expired. In making these recommendations, it is anticipated that Burnaby would not be providing the service for others, that the City of Vancouver, the major user, would. In any event, an installation much larger than is proposed for Burnaby would be required to do the job.

BM:lb
Attach
cc: D.M. Mercier -
Alderman

D.M. Mercier
MUNICIPAL TREASURER

THE CORPORATION OF THE DISTRICT OF BURNABY

March 4, 1971

His Worship, the Mayor,
and Members of the Council.

ITEM 39
MANAGER'S REPORT NO. 49
COUNCIL MEETING Aug. 9/71

Gentlemen:

Re: Electronic Data Processing

The following is in reply to Council's request of February 15, 1971 concerning the anticipated cost savings of one of the proposed major E.D.P. applications for the Assessment Department.

The application, which seems to have most promise for assessment work, is a system using Multiple Regression Analysis. This approach would allow us to relate assessments more directly to market value through measuring the effect on a purchase price of such things as the distance to schools and shopping centres. It has been tested and is in use for residential assessments in a number of jurisdictions on this continent. We believe it could be very useful for Burnaby, but it cannot be put into effect unless our E.D.P. installation is upgraded.

The benefits of such a system are:

- (1) It would assist us in obtaining more equitable assessments. From tests that have been run in California, Multiple Regression gave results which are much more accurate than those produced by other methods.
- (2) It would allow us to evaluate most of the factors which influence market value and determine how these factors change from year to year.
- (3) It would allow us to store all basic information about properties in the computer and program it to carry out routine appraisal calculations. As a result it would free the appraisers of these tasks so that they could devote more time to more productive work.
- (4) It would allow us to change our basic rate structure without changing all our records by hand.

These are the benefits in broad terms, but it is difficult for us to anticipate specific savings as we have had no experience with it. A more useful indication can be obtained from estimates made by others who have adopted the system. Santa Clara County, California, has been involved with the system for two or three years and estimates produced by them indicate that the normal cost of assessing a group of 10,000 residences over an 8-year period would be \$208,000, while a system based on Multiple Regression Analysis would cost \$139,000. The assumptions on which these estimates are based seem reasonable and applicable to Burnaby. The difference between these two figures is substantial enough to indicate that even if there are errors in the basis of the estimates a substantial cost saving could still be anticipated.

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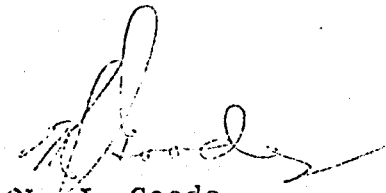
Mayor and Council

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March 4, 1971

Another estimate made by Orange County, California, indicates similar savings. Costs under the former system were \$178,000, whereas in using Multiple Regression comparative costs are \$111,000.

Thus, Multiple Regression holds promise of not only improving the quality of assessments but at a lower cost.



N. J. Goode
MUNICIPAL ASSESSOR

NJG/gh

TO: MUNICIPAL TREASURER
FROM: DIRECTOR OF PLANNING
SUBJECT: ELECTRONIC DATA PROCESSING

16 April 1971

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MANAGER'S REPORT NO. 49
COUNCIL MEETING Aug. 9/71

In reply to your letter of the above title dated February 23, 1971, we have, in conjunction with the Data Processing staff, estimated the cost savings which would be attained over an 8 year period for two major planning applications, if the proposed upgraded data processing equipment is acquired.

Using the most conservative estimates (to be discussed in some detail here under) we estimated that in the case of these two types of studies we would save at the very least \$24,200 in the job of obtaining the required data over an 8 year period. Also, while we would be using only about 41 hours of data processing time we would avoid about 6,400 man hours for data collection.

SUMMARY OF FINDINGS

STUDY I - EXAMINATION OF A MATURE RESIDENTIAL AREA (BY NEIGHBOURHOOD STUDY AREA) TO DETERMINE WHETHER THE AREA, OR A PART OF IT, WOULD BE SUITABLE FOR REDEVELOPMENT, PROBABLY FOR APARTMENT OR COMMERCIAL USE, OR BOTH.

Frequency of Study

One such study per year for each of 8 years is assumed.

Cost Savings over 8 years

Cost using present procedures	\$ 8,100
Cost using upgraded equipment	728
Cost Savings	<u>\$ 7,372</u>

STUDY II - EXAMINATION OF SCHOOL CATCHMENT AREA TO DETERMINE THE AMOUNT OF ADDITIONAL SCHOOL PROPERTY WHICH SHOULD BE ACQUIRED.

Frequency of Study

Three such studies per year for each of 8 years is assumed (i.e. 24 studies in 8 years).

Cost Savings over 8 years

Cost using present procedures	\$ 19,000
Cost using upgraded equipment	2,184
Cost Savings	<u>\$ 16,816</u>

TOTAL 8 YEAR COST SAVINGS FOR STUDY I AND STUDY II

Study I	\$ 7,372
Study II	16,816
TOTAL	<u>\$ 24,188</u>
Rounded off to	<u>\$ 24,200</u>

GENERAL APPROACH

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The approach we took was:-

- (a) to estimate the cost of obtaining the data we would need for two major applications, using present procedures.
- (b) to ask the Data Processing staff to estimate the cost of obtaining the data for the two major applications if it were assumed:-
 - (i) that the required data has previously been entered into the data bank.
 - (ii) that the upgraded equipment we intend to purchase is used.
- (c) to compare the costs of (a) and (b).

EXPLANATION OF THE COSTS TO OBTAIN DATA UNDER PRESENT PROCEDURES

The following Appendix I and Table I and Appendix II and Table II, indicate in detail the manner in which the costs and man hours were estimated for the two study types.

APPENDIX I

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SAMPLE EXAMINATION OF ONE MATURE RESIDENTIAL AREA (BY NEIGHBOURHOOD STUDY AREA).

The following is a list of the data needed for the examination of a hypothetical mature residential study area which would be required to determine whether the area, or a part of it, would be suitable for redevelopment, probably for apartment or commercial use, or a combination thereof. (Refer to accompanying Table D).

The list also contains estimates of the source, the number of persons, the number of hours and the labour cost of obtaining the required data under present practice.

For the purposes of the example it has been assumed that the study area is one of average size and density, containing about 150 apartment units and about 800 single and two family units, for a total of around 950 dwelling units.

It has been further assumed, following discussion with Mr. Chilton, Senior Planner, that an average of one such study per year will be undertaken over the next 8 years.

As may be seen much of the data, some 13 of the 21 items required, will come from the Assessment cards. It has been assumed that one person would have to pull out about 900 cards and that all the data could be obtained from the cards and transcribed onto a prepared form at the rate of about 35 cards per day. This time has then been spread on an hourly basis, as evenly as possible over the 13 items required.

The cost of preparing the report following receipt of the data, typing the report and mapping have deliberately been excluded from the estimates since this work would have to be done regardless of the method or speed with which the data is obtained. Also, the cost of stationary etc. has been omitted, because it would be nominal.

From reference to Table I it may be seen that the cost of obtaining the data for one typical study would be about \$1,013. On the basis of an assumed one study per year for 8 years the cost would be \$8,104, say \$8,100, using present procedures.

The time taken to obtain the data is 266 man hours for one study and 2,128 hours over an 8 year period.

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THE CORPORATION OF THE DISTRICT OF BURNABY

INTER-OFFICE COMMUNICATION

TO: Municipal Treasurer

DEPARTMENT:

DATE: 3 Aug. /71

FROM: Municipal Engineer

DEPARTMENT:

OUR FILE #

SUBJECT:

Electronic Data Processing --
Expansion of Existing System

YOUR FILE #

RECEIVED
AUG 3 1971
MUNICIPAL ENGINEER'S
OFFICE

You are aware that we have had several meetings and discussions concerning the effect on the Engineering Department of updating our Electronic Data Processing Equipment. In particular, we were requested to examine an example of use for engineering purposes and project an eight-year economic return analysis.

We examined in depth several areas which appeared to be suitable for performing such an economic analysis and in each case, unfortunately, the end results did not yield the nature and magnitude of savings which were indicated at first consideration. I have reached the tentative conclusion that good-return engineering examples of computer uses are difficult to come by and perhaps this is at least partly owing to our current particular state of development; it would appear that the City of Vancouver has several pure engineering uses for the computer but what is perhaps good for Vancouver is not at all necessarily the case for Burnaby as well. This is where the over-all state of development would be a factor.

I would hasten to add that "accounting" uses of the computer are extremely useful to Engineering and even essential. Our cost reporting system is second to none throughout the Province, I have discovered through discussions with other Municipal Engineers. In recent discussions with your Mr. Karras, we have agreed to expand and improve the present "accounting" uses of the computer for engineering purposes, particularly in the matter of "automatic" processing of contract progress payments and improved contract administration in general.

To return to the question of an engineering example, I have been advised by our Design Engineer that we have the following computer use which appears to be the best example available for economic analysis at the present time:

Description:

To process and evaluate time cards and from them to make analysis of forecasts of time and manpower requirements and to establish an average cost of design per unit length of project, say 100 feet.

The Requirement:

It is estimated that non-computer means of obtaining the above information would require 725 man hours over a period of 2 years.

Rate of Pay for Non-Computer Means:

\$1.75 per hour

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THE CORPORATION OF THE DISTRICT OF BURBANK

INTER-OFFICE COMMUNICATION

TO: DEPARTMENT: DATE:
FROM: DEPARTMENT: OUR FILE #
SUBJECT: YOUR FILE #

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It is unfortunate that a better example of improved computer use could not be found. However, it is considered that as time goes along further and better uses similar to the one cited above will be found for engineering application.

EEO:op

c.c. (✓) Municipal Manager
() Alderman D.M. Mercier
c/o Clerk's Office

E.E. Olson
MUNICIPAL ENGINEER