

RE: AUTOMATED CIRCULATION CONTROL SYSTEM  
BURNABY PUBLIC LIBRARY

ITEM	1
MANAGER'S REPORT NO.	1
COUNCIL MEETING	1982 01 04

ACTING MUNICIPAL MANAGER'S RECOMMENDATION

1. THAT the recommendations of the Chief Librarian be adopted.

\* \* \* \* \*

TO: MUNICIPAL MANAGER 1981 December 21

FROM: CHIEF LIBRARIAN

RE: AUTOMATED CIRCULATION CONTROL SYSTEM  
BURNABY PUBLIC LIBRARY

RECOMMENDATION:

1. THAT Council authorize staff to complete a contract between the Corporation and Universal Library Systems Ltd to supply an automated circulation control system for Burnaby Public Library at an estimated cost of \$401,600; AND
2. THAT Council authorize the expenditure of an estimated \$256,000 for additional capital costs associated with this project; AND
3. THAT the means of financing as outlined in the body of this report be accepted.

SUMMARY:

The Burnaby Public Library Board has analysed its existing procedures and methods and determined that automating check in, checkout and ancillary control functions will increase the effectiveness of the service while at the same time restricting the growth of operating budgets.

A Request For Proposal was issued in 1981 April and responses from vendors have been evaluated.

The Library Board has selected the turnkey system proposed by Universal Library Systems Ltd as its preferred option.

The capital costs of implementing this system total \$657,600. The eight year operating costs are \$629,425. Although the capital costs were the highest of the systems considered the long term operating costs were the least expensive. Quantified operating benefits total \$1,298,000 plus substantial non-quantifiable benefits from increased service effectiveness.

Capital funding will be from the library's reserve fund (\$366,600) and the Province (\$291,000). Operating costs will be borne by the library. No additional Municipal funding is sought.

Council's approval is sought for staff to complete a contract with Universal Library Systems Ltd.

BURNABY PUBLIC LIBRARY BOARD

AUTOMATION PROGRAMME

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BACKGROUND

Council has been made aware of the Library Board's intentions regarding automation by means of a series of information reports and budgets reflecting automation concerns since 1978. In 1980 September Council received, as an information item, a report describing the Board's comprehensive Automation Programme. The major thrust of the Programme was to select a preferred automated circulation control system during 1981.

GOAL

To respond to the library needs of the community by maximising accessibility to resources and to increase effectiveness and efficiency of operations while limiting the growth of operating budgets over the long term.

OBJECTIVES

- To control inventory, loan transactions and ancillary functions more effectively and efficiently.
- To increase access to library materials through catalogues available at all service outlets.
- To provide management information permitting the evaluation of existing services and assistance in planning future services.

DETERMINING NEEDS

In 1980 September the Library Board authorised staff to analyse the library's internal systems and procedures in order to define the library's requirements for an automated system.

The manual circulation system operates the check-in, check-out of books to readers, and handles the reserves, overdues and fines procedures for the library. It has functional limitations which will become more severe as library usage increases in response to growing public demand. Under the existing system the library has little control over the use of reader cards. Delinquent borrowing cannot be checked because of the volume of transactions at the checkout counters. Overdue notices are frequently behind schedule; faster notification would result in better utilisation of titles, increased collections of fines and reduced losses of non-returned materials.

The present manual system cannot effectively demonstrate whether a requested book is available elsewhere in the system, when it is due back, or whether it is lost. On return from loan every book must be visually checked against a reserves list. "Lost" books claimed to have been returned by a reader take several months to confirm, sometimes with embarrassing results to the library.

Automated circulation control offers a significant improvement in access to and use of books and materials throughout the community. It provides better control of loans, the automatic generation of overdue notices, progressive inventory control and improved management data leading to more effective use of limited resources.

Automated circulation control also offers the advantage of restricting future operating costs.

COOPERATION

The Corporation's own consultant reviewed the library's participation in the Municipal computer before it was installed. Since there was no relationship between the unique automation needs of the library and those of the Municipality no benefits were apparent and this option was rejected.

Close liaison has been maintained throughout with Municipal staff, particularly members of the Treasury, Computer Services, Purchasing and Solicitor's departments. The Library Board also retained the services of a consultant to assist in technical evaluation. The Corporation's Computer Advisory Committee has reviewed the Board's proposal and supports it. (see Appendix #1)

Possible automation links with neighbouring libraries have also been studied. The Library Board is sensitive not only to the need for local resource-sharing, but also to the financial support that is attached to this aspect of interlibrary cooperation by the Ministry of the Provincial Secretary and Government Services.

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THE REQUEST FOR PROPOSALS

The Board's submission of its Programme to Council in 1980 was followed by a report on 1981 March 09 describing the Board's progress towards developing a Request For Proposals and retaining a technical consultant. The Library Board instructed staff to design a Request for Proposals for an automated circulation control system. This was reviewed by the Library Board's Automation Committee and the Corporation's Computer Advisory Committee before being issued by the Purchasing Department in 1981 April.

The library's automation team, including staff members Jonathan O'Grady and Paul Whitney, was able to assess the potential of suppliers to meet the requirements of public libraries elsewhere by establishing a solid core of information based on site visits, correspondence, technical reports and discussions with representatives of other libraries. In addition to library installations in Vancouver, Richmond and West Vancouver, communication was maintained with other libraries currently involved with automated projects, notably London, Oakville, Ottawa, Brampton, Edmonton and Spokane.

The knowledge and experience gained was invaluable in developing the library's requirements and evaluating responses from suppliers.

EVALUATION OF RESPONSES

The Library Board placed value on the advantages inherent in installing a self-contained, integrated field-tested system in preference to developing its software programmes in-house.

The library based its evaluation on four broad criteria.

1. The operational features of the system.
2. The financial guarantees the vendor was prepared to make on behalf of his system.
3. A measure of the library's confidence in the proposal in terms of
  - . the vendor's past experience in automated circulation control
  - . vendor's financial stability
  - . technical soundness.
4. The capital and operating costs.

These criteria were considered within the framework of a formalised decision-making process to arrive at consensus.

Technical evaluation was carried out by a consultant from Computech Ltd., whose Technical Report is attached for reference. (see Appendix #2)

Responses were received from seven vendors. Four were eliminated after the first phase of review. The remaining three responses from CL Systems Inc, GeacCanada Ltd, and Universal Library Systems Ltd, were subject to close scrutiny within the process described above, coupled with interviews with vendors and site visits to other libraries. In the resulting analysis Universal Library Systems Ltd emerged as the most appropriate system for Burnaby's needs with a total points score of 58.6 compared with 53.7 for Geac and 28.0 for CLSI.

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COMPARATIVE COST SUMMARY

Although Universal was the most expensive in terms of capital costs, its operational costs were lowest of the three. This is significant in that a Provincial subsidy is available for the capital expenditure on this project.

	<u>CL Systems Inc</u>	<u>Geac</u>	<u>Universal</u>
Gross capital costs	\$ 542,887	\$ 503,066	\$ 631,335
Operating costs over 8 years in constant 1981 dollars	\$ 677,790	\$ 726,570	\$ 628,099
Combined costs in constant 1981 dollars	\$1,220,677	\$1,229,636	\$1,259,434

CAPITAL COST SUMMARY OF RECOMMENDED PROPOSAL

After the comparative evaluation was made the library entered into detailed discussions with Universal which led to a modification of the proposed configuration as a result of technological improvements which had occurred during the intervening six months of the evaluation process.

A computer with approximately double the capacity of the previous model is now available. The library can acquire this for no additional cost from Universal Library Systems Ltd by making some its unused storage available to the vendor. The larger computer will provide the library with ample capacity not only to meet foreseeable needs in Burnaby but also to permit use by neighbouring libraries on a revenue producing basis.

The operating costs remain virtually unchanged at \$629,425. The capital costs of the project reflect modifications to peripheral equipment and revised estimates for site preparation.

Universal capital costs:

Hardware	\$310,119
Software	49,500
Supplies	22,877
Contingency	<u>19,104</u>
	\$401,600

Associated capital costs:

Conversion	\$95,297
Site preparation	54,955
Communications	40,352
Project management	30,000
Hardware & Supplies	23,171
Contingency	<u>12,225</u>
	256,000
	<u>\$657,600</u>

AVAILABILITY OF FUNDING

Correspondence between the Chairman of the Library Board and the Provincial Secretary regarding the availability of funding led to a review of the Board's project by the Provincial Library Services Branch. As a result of his department's confidence in the Board's decision the Provincial Secretary has confirmed that \$291,000 is available towards the capital cost of this project from Provincial funds. (see Appendix #3)

As a result of planning its Automation Programme over the past several years the Library Board has accumulated a reserve fund approved by Council for library automation purposes. An amount of \$366,600 is available from this reserve fund.

Provincial funds effectively meet the difference between the Board's reserves and the total capital costs of the project. No additional Municipal funding is being sought.

Library Board reserves	\$366,600
Provincial capital grant	<u>291,000</u>
Total Capital Expenditures	<u>\$657,600</u>

BENEFITS FROM AUTOMATED CIRCULATION CONTROL

Based on current trends the number of library transactions will increase from 1,400,000 at present to at least 1,600,000 per year by 1989. The manual system is labour intensive and despite the fact that salary costs per item loaned are lower for Burnaby Public Library than for any other library in the Lower Mainland, costs will inevitably increase to meet increased usage by readers.

Under the manual system, the ratio of staff to annual transactions has remained steady at 1:17,000 and the library can expect to employ twelve extra staff by 1989 (excluding new programmes or any additional branches that may be built). Of these, eight staff would have to be employed in manual circulation activities at existing branches in order to maintain the same level of service effectiveness as is achieved at present. Implementing automated circulation control will obviate the need for these eight positions.

Savings through attrition can also be made in the existing staff salaries budget. Although additional staff will be required to supervise and operate the automated system, there will be a net saving equivalent to 3.9 staff per year. Over the life of the system combined salary savings are estimated at \$985,000.

Inventory procedures are extremely cumbersome to carry out manually. Automation will facilitate inventory activities permitting up-to-date catalogues. Savings from cost avoidance are estimated to be \$30,000.

Under the present system many fines for overdue materials are difficult to collect. Automation permits the accurate accounting of overdue fines and fees and the system will not permit the checkout of materials to readers with outstanding accounts above a controlled threshold. Experience in other libraries indicates that the library can expect to generate increased revenue totalling \$123,500 over seven years.

Stationery costs for manual procedures (involving reader registration, transaction cards, overdue notices, reserve cards, etc) exceed those within the automated system by \$11,000 per year, representing a total savings of \$71,500 for the period under review.

The current equipment used to photograph checkout transactions and view the film for overdue purposes is in need of urgent replacement. This can be avoided by installing automated equipment for an estimated saving of \$28,000.

Approximately 3,000 volumes a year are lost to the library. Non-return of overdue books by delinquent readers account for about one-third of these losses. At a conservative \$10.00 per volume this represents a loss of \$10,000 annually. Although no savings have been estimated during the first year of operation, savings from avoiding the cost of replacing these lost volumes thereafter will total \$60,000.

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SUMMARY OF BENEFITS 1981/1989

Salary savings	\$ 985,000
Inventory	30,000
Fines revenue	123,500
Stationery	71,500
Equipment	28,000
Materials	60,000
Total Benefits	\$1,298,000
Less operating costs	(630,000)
Capital costs	\$ 668,000
Provincial Grant	(658,000)
	291,000
Net Benefit	\$ 301,000

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These costs/benefits are expressed in constant 1981 dollars. A full schedule of costs/benefits is attached (Appendix #4). The present value of the net benefits is estimated at between \$150,000 and \$200,000. (see Appendix #5)

ADDITIONAL BENEFITS

It is the Board's intention to extend the use of its system to neighbouring libraries in the future. The revenues to be generated from this, like many of the benefits associated with automated circulation control outlined here, are not quantifiable at this time.

Since the existing manual process may take several weeks to achieve what automated circulation control provides almost instantaneously, a significant improvement is expected in turnaround times for books and materials and consequent user satisfaction.

Automation generates increased usage and consequent user satisfaction; more books are borrowed and more reserves are placed by a greater number of library users simply because of the greater efficiency of the system in utilising existing resources.

Improved access to the book collections by staff via the automated data base and the availability of computer-produced catalogues at all of the branch libraries will further increase the level of user satisfaction with the library service.

The collections will be better protected by generating overdue notices as frequently as desired. Delinquent readers can be denied further access until materials are returned which will permit users better service from existing materials especially in high demand areas.

Improved management data generated from the system will contribute to increased effectiveness in decision-making, improved procedures and workflows. (An improvement of two percent in staff efficiency is equivalent to \$32,000 per annum.)

The book budget will be better managed by identifying heavy use areas for additional purchase, discard, or transfer to storage or other locations. (An improvement of two percent in materials selection decisions is equivalent to \$8,000 yearly.)

None of these soft-dollar benefits has been included in Appendix #4.

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FUTURE BRANCH LIBRARY DEVELOPMENT

The costs and benefits presented above do not include the benefits from automation that will be possible in developing new collections of materials or the advantages associated with operating new branch libraries.

New branch libraries are planned to serve the Kensington and South Slope areas at an estimated combined capital cost of \$4,000,000 with operating expenditures of almost double this amount up to the end of this decade. These costs may be dramatically reduced by substituting storefront outlets for conventional branch libraries. Until now the Library Board has been reluctant to expand the storefront concept pioneered at the Crest Paperback Library because of service limitations imposed by small collections and lack of catalogue access to the library system as a whole.

Automation is the means by which those limitations may be overcome.

The Board's studies show that storefront operations are substantially less expensive to develop and operate than conventional branch libraries while meeting many of the conventional criteria for service effectiveness, as a result of linking storefronts with the automated large branch collections by means of a communications network. Studies in this area will be continued by the Library Board which is optimistic that its innovative proposals for future service outlets during a period of economic restraint will prove fruitful in meeting community service needs in accordance with its goals.

IMPLEMENTATION SCHEDULE

Contract signing	1982 January
Installation of hardware	1982 May
First library operational	1982 December
Final acceptance (dependent on comprehensive evaluation and tests)	1983 October

LIBRARY BOARD ATTENDANCE

Members of the Burnaby Public Library Board and staff will attend the meeting of Council on 1982 January 04 and are prepared to respond to Council's questions if required.

Bryan L. Bacon  
CHIEF LIBRARIAN

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APPENDIX #1

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LIBRARY  
INTER-OFFICE COMMUNICATIONS

TO: CHIEF LIBRARIAN DEPARTMENT: REPORT  FILE  ANSWER DATE: 81 10 01  
FROM: MUNICIPAL TREASURER DEPARTMENT: OCT-2 1981 OUR FILE # C58-25  
SUBJECT: LIBRARY AUTOMATED CIRCULATION CONTROL SYSTEM

YOUR FILE #  
REPORT APPENDIX

The Computer Advisory Committee met on 1981 September 29 to review a discussion report on the Automated Circulation Control System that you are proposing for the Library system. Following review of the report, the Committee adopted the following motion:

"THAT the Computer Advisory Committee support the proposal submitted by the Chief Librarian."

Howard Karras  
CHAIRMAN,  
COMPUTER ADVISORY COMMITTEE

HK:gw

cc: Municipal Engineer  
Director of Planning  
Parks & Recreation Administrator



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COMPUTECH CONSULTING CANADA LTD.

LIBRARY

RECEIVED

October 30, 1981      ANS.                 

Mr. Bryan L. Bacon  
 Chief Librarian  
 Burnaby Public Library  
 4455 Alaska Street  
 Burnaby, B.C.  
 V5C 5T3

NOV - 2 1981


Dear Mr. Bacon:

Reference: Automated Circulation System

This letter is submitted to summarize our findings regarding the selection of the best vendor for the proposed Automated Circulation System.

Our terms of reference for this project were to participate with the staff automation committee in assigning up to 35 points for the technical soundness of each proposal. Factors to be considered included the following:

- Software design
- Software maintenance
- Ease of software modification
- Processor power
- System reliability
- Equipment maintenance record
- Response time
- Quality of documentation

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Specifically excluded from our terms of reference, by mutual agreement, were the following areas:

- Functional comparisons, i.e., those which are best carried out by library staff.
- Costs, except to ensure that the systems costed were complete and comparable, insofar as possible.
- Vendor financial stability and track record with other library systems.

In practice, terminal evaluation was also not carried out by us except for background comment, as the efficiency of terminals is more a functional than technical matter. In addition, the proprietary nature of the software precluded a technical examination of program documentation. (In this context, however, the library may wish to protect itself from supplier financial problems by contractually requiring that a third party, e.g., lawyer, keep a copy of the application software for library use in case of supplier failure.)

### 1. BACKGROUND

A number of submissions were received from vendors in response to the April 1981 Request for Proposal. Four of these were forwarded to us for technical evaluation. The proposal from Dataphase Systems, Inc. was dismissed, after an initial review, for the following reasons:

- No apparent cost advantage over other suppliers.
- Equipment no faster than competitive systems.
- Response time commitment not firm or meaningful.
- Non-standard software approach, potentially causing local support problems and maintenance difficulties.
- Systems support not available locally.
- No Canadian installations.

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Since there were no apparent significant advantages in Dataphase's favour vis a vis other vendors, it was decided not to pursue their proposal further unless all other surviving vendors turned out to be unacceptable.

The surviving vendors were Geac Canada Ltd., Universal Library Systems Ltd. and CL Systems Inc. Joint meetings were held with each of these vendors and external differences, such as communication costs, were defined and estimated. Our findings for each of the vendors are outlined below in alphabetical order.

## 2. CL SYSTEMS, INC.

### 2.1 DESCRIPTION

CLSI bid a Digital Equipment Corporation 11/34 computer with 256K byte memory, 2 disks of 255M byte each, a 180 character per second printer and various terminals based on the Lear-Siegler ADM-3A. Subsequently a medium speed tape (72K byte) was added for conversion, processing and other system communication reasons. Alternatively, an 11/44 processor could be used, according to a late proposal change.

The systems software used is the very unusual FLIRT language on the standard Digital Equipment RMX operating system.

### 2.2 EQUIPMENT

#### 2.2.1 Performance

In our opinion, the 11/34 processor originally proposed is unlikely to provide even approximately the desired and specified response times at peak times. In this regard, it was notable that CLSI was unwilling to provide performance commitments at our actual peak rate (5500 transactions an hour).

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The 11/44 subsequently proposed may meet our objectives, but no improved performance commitment was made.

The larger 11/44 processor has an inherent ability to provide 25% more performance and, with software changes, an estimated increased performance in the order of 100%. This system is also to be used for the CLSI larger scale systems in the future, but none are currently in CLSI customer hands. In view of the concern regarding the 11/34's power, the evaluation was carried out based on an 11/44 without the software changes.

#### 2.2.2 Expansion

Without field experience, it is difficult to judge the actual processing ability of the 11/44 on the CLSI software, but it should be somewhat greater than the Universal Library System approach, due to the performance orientation of the programming language. Further expansion would be by use of multiprocessors in a system currently under development by CLSI.

#### 2.2.3 Reliability

The system is a mixture of components from many suppliers that has proved to be about average in reliability in the past. This mixture of suppliers complicates service problems, particularly if CLSI should leave the library business, and is not a contributor to good long term reliability.

#### 2.2.4 Maintenance

CLSI's service record at installations visited and locally has been poor. Some equipment sold was reconditioned, i.e. used. The time to repair key components has ranged up to ten days, while terminal repair is regularly measured in weeks.

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In order to resolve these problems, CLSI has contracted Datatech in Vancouver to act as an alternate maintenance source, which should improve the situation. The equipment used by CLSI, however, is not the same as usually sold by Datatech, so good product familiarity cannot be assumed. Based on the foregoing, CLSI maintenance support can at best be categorized as marginal.

## 2.3 PROGRAM SYSTEMS (SOFTWARE)

### 2.3.1 Technical Approach

The FLIRT language is a non-standard language, selected for its ability to maximize system performance. The disadvantages include inflexibility and the difficulty in obtaining local support.

### 2.3.2 Ease of Modification

CLSI has been slow to respond with significant software changes, at least in part due to the language selected. This opinion is supported by their slowness to functionally enhance their system to compete with Geac and Universal Library, as well as their still incomplete adaptation to the newer 11/44 processor and its memory feature. We believe this lagging behind industry leaders is likely to continue insofar as it is caused by the software used.

### 2.3.3 Local Support

Local support and third party development of special programs is probably impractical with the software used.

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#### 2.3.4 Maintenance

Local software maintenance is not practical. Based on site visits, CLSI's software maintenance, training and assistance seemed longer on promise than delivery. New releases caused system failures and response time to trouble calls was poor. The extensive staff resources devoted to field marketing, on the other hand, allows some suspicion that marketing takes a higher priority than support.

#### 2.3.5 Operations

With the exception of its mediocre backup and recovery functions, which are currently being upgraded, computer centre operations seemed to be about average in staff demands for time (one person full time, two trained) and complexity.

#### 2.4 SUMMARY

The 11/34 processor is inadequate for extended use, and the systems should only be considered with an 11/44. Non-standard software will provide rigidities and support problems, albeit with theoretically improved performance. Maintenance has been marginal for the equipment, and barely adequate for software. If for any reason CLSI should leave the library systems industry, the risks in terms of equipment and software would be high. There were no currently demonstrable technical advantages to compare with the disadvantages.

#### 3. GEAC CANADA LTD.

##### 3.1 DESCRIPTION

Geac Canada Ltd. proposed a Geac 6040 system with 512K byte memory, 2 disks with

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160M bytes each, a 220 line per minute printer, a 150K byte tape drive and various terminals based on the Informer unit. The system architecture used is very efficient in the use of communication facilities.

The system software used is the HUGO language, using the ZOPL operating system, both of which are unique to Geac.

### 3.2 EQUIPMENT

#### 3.2.1 Performance

The 6040 processor uses 2 Geac 250 processors, and is a simplified, less powerful version of the older 8000 model, which uses 4 processors. Based on the 8000's performance, and the changes made to it, we anticipate actual equipment performance to be comparable to a Digital Equipment 11/44 but, as discussed later, the very special software probably results in overall performance somewhat superior to the other proposed systems. For instance, core terminals may be added without significant degradation of response time. The exact degree of superiority cannot be measured with the information available, but is probably considerably less than 50%. Geac proved unwilling to commit to our specified figures, but were prepared to guarantee response times about double those requested. Based on site visits, this appears to be caused by caution more than by inadequacies.

#### 3.2.2 Expansion

Expansion is practical to any likely limit through the use of 8000's, or net-working additional 6040's.

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### 3.2.3 Reliability

Geac systems in the past have proven to be acceptably reliable for central site equipment both locally and in library use.

### 3.2.4 Maintenance

Equipment maintenance by Geac has been acceptable, both locally and for libraries. Competent third party service is also available in Vancouver.

## 3.3 PROGRAM SYSTEMS (SOFTWARE)

### 3.3.1 Technical Approach

Both the language and operating system are unique to Geac and are optimized to produce the fastest possible transaction processing consistent with security. This results in the same potential support problems as does the CISI approach, but is expected to have a more beneficial impact on performance.

### 3.3.2 Ease of Modification

The high level of system software skills usually associated with Geac has apparently avoided some of the flexibility problems inherent in this approach, based on the actual systems in user hands.

### 3.3.3 Local Support

Local support will be very limited, as all indepth technical support is to be concentrated in Markham, Ontario. This can be expected to produce problems in terms of training and maintenance greater than those encountered by Ontario users but the net effect is difficult to estimate.



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### 3.3.4 Maintenance

Geac's reputation for software maintenance is adequate, but their market is primarily academic libraries, so enhancements required for public libraries have been slow in coming, which will probably be a continuing problem. Due to the software used, Burnaby would be completely dependent on Geac for software maintenance and support.

### 3.3.5 Operations

Staff requirements are greater with the Geac system than others, in terms of staff quality and quantity. Operations in a comparable library (London) required the equivalent of 1.2 operators full time and a systems manager one third time. Both performance and reliability have been very dependent on the system manager. The 6000 is promised to be an improvement over the 8000 in this regard, but it is unlikely to be as simple as some other systems.

### 3.4 SUMMARY

The Geac system is technically acceptable in all respects, and is superior in terms of performance. The principle weak points are the lack of local software support, the concentration on academic libraries, and the relative complexity of operation.

Should Geac decide not to pursue public libraries at some future date, the risks in terms of software development and support are high. Otherwise, the risks are only a minor consideration.

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#### 4. UNIVERSAL LIBRARY SYSTEMS LTD.

##### 4.1 DESCRIPTION

Universal Library bid a Digital Equipment 11/44 with 256K bytes memory, 2 disks of .67M bytes capacity each, a 72K byte tape drive, a 180 character per second printer and appropriate terminals. The system software is the Basic Plus language using the RSTS/E operating system, both of which are standard Digital products.

##### 4.2 EQUIPMENT

###### 4.2.1 Performance

The equipment is comparable to that submitted by Geac and significantly superior to the original CLSI proposal, but the system software approach selected will result in less performance than with the Geac system. There is a quoted maximum of 32 terminals on the 11/44, assuming memory additions, and the maximum may be less. Nevertheless, Universal made firmer performance commitments than the others. We expect additional memory to the 256Kb may be necessary almost immediately, particularly as comparable systems visited used 11/70's rather than 11/44 processors. Performance commitments should also be contractually specified.

The most obvious discrepancy between ULISYS and the others is the much smaller disk space provided but it appears sufficient for Burnaby's requirements with the addition of one drive before 1987, provided the supplier space estimate factors are correct and complete.

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#### 4.2.2 Expansion

System expansion is most logically to an 11/70, which will be available quite inexpensively on the used market. Alternatively, a faster version of the 11/44 will probably be marketed at that time.

#### 4.2.3 Reliability

The central site equipment has proven reliable, and is in very common use in the industry.

#### 4.2.4 Maintenance

Equipment maintenance by Digital is very acceptable. Third party maintenance is easily available.

### 4.3 PROGRAM SYSTEMS

#### 4.3.1 Technical Approach

Both the language and operating system are standard products, which has the effect of reducing performance while providing flexibility and great ease of maintenance.

#### 4.3.2 Ease of Modification

This system should be much easier to enhance and to adapt to local requirements than its competitors. This appears confirmed by its superior range of function. This can cause problems in control of field staff changes by Head Office.

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#### 4.3.3 Local Support

The systems developers are resident in Vancouver, so good local support can be expected. In fact, Burnaby can expect training and trouble shooting to be superior to that experienced by more remote users.

#### 4.3.4 Maintenance

ULISYS installation and software maintenance record is mediocre, in that there is considerable internal disorganization and lack of communication, but commitments are eventually met. The applications orientation of ULISYS can be expected to produce more and more easily used features than Geac, while resulting in more error prone software changes (a theoretical expectation that appears to be borne out in practice). The system is the only one where third party software maintenance is practical and relatively easy.

#### 4.3.5 Operations

Staff requirements are a little less than those for Geac, in terms of time and technical skills. Availability of personnel familiar with the software is good.

#### 4.4 SUMMARY

The ULISYS system is technically acceptable in all respects, and is superior in terms of flexibility, function and local support. Relative to Geac, the weak points are somewhat inferior performance and disorganized installations.

Should ULISYS for any reason not be willing to support public libraries in the future, the software and equipment maintenance support problems would be the least of all the vendors, especially if application software documentation is made available.

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### 5. INITIAL CONCLUSIONS

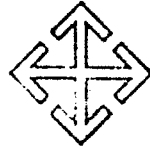
This review has been carried out with consideration of technical factors and only overall impressions of site visit findings. These impressions were used to confirm or disprove expectations caused by technical factors, but did not directly affect the evaluation. Cost differences were not considered.

Points were awarded to each supplier, under the categories described above, as follows:

	MAXIMUM POINTS	CLSI	GEAC	ULISYS
EQUIPMENT	18.0	7.5	16.0	13.5
PROGRAM SYSTEMS	17.0	5.0	9.0	15.0
TOTAL	35.0	12.5	25.0	28.5

Based on the foregoing, we believe the ULISYS approach to be somewhat superior to Geac, and both of them to be greatly superior to that of CLSI for Burnaby from a technical viewpoint. In our opinion, the enhanced function in the present ULISYS system and its flexibility for future development will be of more importance than its somewhat inferior performance, vis a vis the Geac system, in the long run. Accordingly, we initially recommended you proceed with this approach.

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### 6. ULISYS VAX PROPOSAL

Subsequent to our original recommendations, Universal provided an additional quotation for its system using a VAX 11/750 processor supplied by Digital in place of the 11/44 based system. The improvements of proposals after submission to reflect technical developments is common practice in this industry due to the rapid rate of change involved. Accordingly, the proposal was considered. Vis a vis the 11/44 already considered and recommended, the VAX 11/750 configuration has the following advantages.

- The processor is at least twice as fast resulting in a practical capacity for many more CRT's. A maximum of 64 is theoretically possible; at least 50 would be a reasonable expectation unless unforeseen and unexpected technical problems appear.
- Disk capacity is increased from 134M bytes total to 248M bytes of slightly faster disk, thus removing any need for additional disk capacity, except insofar as other than Burnaby library organizations participate, and cause significant volume increases.

These features change the performance comparison vis a vis Geac in that the Universal VAX system is, in our judgement, superior in performance terms.

The software used is functionally similar to that used on a 11/44 but Universal must complete a conversion to use the VAX. Universal is committed to other customers to do this conversion and it is not technically onerous so we see no inherent problem. The library may wish to contractually ensure, however, that payment for equipment will follow software acceptance as added protection.

There is an initial additional cost of \$48,000.00 (including P.S.T.) for the VAX system. Offsetting this expense is the reduced need for future expansion (one



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disk drive not needed for a reduction of nearly \$27,000; no processor replacement necessary for additional library) and less costly maintenance of about \$5900.00 per year. In effect, the superior VAX performance is available at no net extra cost over the lifetime of the system.

In summary, the VAX system offers all the benefits of the 11/44 approach initially recommended and additionally offers performance superior to that of Geac.

#### 7. FINAL CONCLUSIONS

Points were awarded to the VAX approach resulting in the following totals:

	MAXIMUM POINTS	CSL1	GEAC	UNIVERSAL 11/44	UNIVERSAL 11/750
EQUIPMENT	18.0	7.5	16.0	13.5	17.0
PROGRAM SYSTEMS	17.0	5.0	9.0	15.0	15.0
TOTAL	35.0	12.5	25.0	28.5	32.0

Based on the foregoing, we believe the Universal VAX proposal to be significantly superior technically to the Geac which is in its turn superior to the CLS1 system. Accordingly, we recommend this approach.

#### 8. COMMUNICATIONS COSTS

Consultec Consulting provided estimates of communications network costs for evaluation purposes. A more detailed examination of the approach for the supplier selected should be carried out after the contract is negotiated.

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	CAPITAL COSTS		MONTHLY MAINTENANCE	LINE COSTS	TOTAL MONTHLY COSTS
	CLSI	38992	200	594	794
GEAC	5088	50	619	669	
ULISYS	38992	200	594	794	

P.S.T. is included at 6%.

Geac costs could increase \$11,500 if the linedriver approach suggested proves unworkable.

Thank you for your interest in our services. Please call me if any areas require clarification.

Yours very truly,



I.U. Reid  
 Vice President

IUR/JLC



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APPENDIX #3

Province of  
British Columbia  
OFFICE OF THE MINISTER

Ministry of  
Provincial Secretary  
and Government Services

Parliament Buildings  
Victoria  
British Columbia  
V8V 1X4

LIBRARY  
RECORD

REPORT  FILE  ANS.

September 30, 1981

OCT -5 1981

• BOARD  
• DEPT. APPENDIX

Mrs. Bette Zarazun  
Chairman of the Board  
Burnaby Public Library  
4455 Alaska Street  
Burnaby, B.C.  
V5C 5T3

Dear Mrs. Zarazun:

I am writing to confirm my Ministry's approval of your application for \$291,000 from the Computerization of Libraries Fund based on the project plan developed by your staff with the Library Services Branch. These funds will be made available to Burnaby as required by the cash flow of the project.

I hope that access to these funds will be of significant assistance to Burnaby in providing better service to your citizens.

Yours very truly,



Evan M. Wolfe  
Minister

TABLE OF COSTS/BENEFITS RELATED TO UNIVERSAL LIBRARY SYSTEM AUTOMATED CIRCULATION CONTROL (in 1981 constant dollars)

ITEM	1981	1982	1983	1984	1985	1986	1987	1986	1989	Total
Staff savings	\$ -	\$ -	\$ 49,600	\$113,400	\$130,400	\$147,400	\$164,400	\$181,400	\$198,400	\$ 985,000
Inventory	-	-	-	5,000	5,000	5,000	5,000	5,000	5,000	30,000
Revenue	-	-	-	19,000	19,000	19,000	19,000	19,000	19,000	123,500
Stationery	-	-	-	11,000	11,000	11,000	11,000	11,000	11,000	71,500
Equipment	-	-	-	-	-	-	-	-	-	28,000
Materials	-	-	-	10,000	10,000	10,000	10,000	10,000	10,000	60,000
Total Benefits	\$ -	\$ -	\$ 92,600	\$158,400	\$175,400	\$192,400	\$209,400	\$226,400	\$243,400	\$1,298,000
Less Operating Costs	\$ -	\$ 600	\$ 1,200	\$ 1,200	\$ 1,200	\$ 1,200	\$ 1,200	\$ 1,200	\$ 1,200	\$ 9,000
Insurance	-	600	1,200	1,200	1,200	1,200	1,200	1,200	1,200	185,130
Hardware	-	12,342	24,684	24,684	24,684	24,684	24,684	24,684	24,684	185,130
Software	-	-	6,300	8,400	8,400	8,400	8,400	8,400	8,400	56,700
Supplies	-	-	12,480	12,480	12,480	12,480	12,480	12,480	12,480	87,360
Communications	-	5,364	10,728	10,728	10,728	10,728	10,728	10,728	10,728	80,460
Staff	-	11,580	23,160	23,160	23,160	23,160	23,160	23,160	23,160	173,700
Air conditioning	-	-	540	1,080	1,080	1,080	1,080	1,080	1,080	7,020
Contingency	-	1,551	3,982	4,087	4,087	4,087	4,087	4,087	4,087	30,055
Total Costs	\$ -	\$ 31,437	\$ 83,074	\$ 85,819	\$ 85,819	\$ 85,819	\$ 85,819	\$ 85,819	\$ 85,819	\$ 629,425
Capital Costs	\$ (10,000)	(\$582,004)	(\$65,596)	-	-	-	-	-	-	\$ (657,600)
Less Provincial Grant	-	291,000	-	-	-	-	-	-	-	291,000
NET BENEFITS/ COSTS	\$(10,000)	(\$322,441)	\$(56,070)	\$ 72,581	\$ 89,581	\$106,581	\$123,581	\$140,581	\$157,581	\$ 301,975

APPENDIX #4

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*Touchet Ross & Co.*

RECEIVED Accountants

November 25, 1981

The Chief Librarian  
Burnaby Public Library  
4455 Alaska Street  
Burnaby, B. C.  
V5C 5T3

Attention: Mr. B. Bacon

Dear Sir:

Re: Present Value of Net Benefits  
Automated Circulation Control System

Pursuant to your request, we have calculated the present value of the net benefits arising upon the installation of Universal Library System's Automated Circulation Control System for the fiscal years 1981 to 1989, inclusive.

In performing our calculation, we have relied upon the following:

- a) Your table of costs and benefits for the years 1981 to 1989 which indicates a net benefit of \$10,975 for the period. This table does not account for the provincial capital grant nor the present value of funds;
- b) The capital necessary to fund the project will come from two sources: \$291,000 provincial capital grant; the balance being from Library board reserve.

From the attached schedule, it can be seen that the provincial grant of \$291,000 has been deducted from the cost of the project. This has been done because:

- a) it is our understanding that the provincial grant monies need never be repaid and are free of interest;
- b) the net benefit to the Library should be calculated on internally generated funds which could be used on other projects.

Because the table of costs and benefits prepared was in constant 1981 dollars, we have applied a range of discount rates (3% to 5%), which represent an estimate of the long term differential between interest rates and inflation rates. For simplicity, it has been assumed that benefits and costs occur at year end.

Based on the above, the present value of the project would be:

..12

*Touche Ross & Co.*

November 25, 1981

The Chief Librarian  
Burnaby Public Library

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	<u>Low</u>	<u>High</u>
Discount Rate	5%	3%
Total Discounted Benefits	\$ 998,000	\$1,105,000
Total Discounted Costs	<u>846,000</u>	<u>902,000</u>
Net Present Value Benefit	<u>\$ 152,000</u>	<u>\$ 203,000</u>

Therefore, the present value of the net benefit arising from the project over the period 1981 to 1989, inclusive, will be in the range of \$150,000 to \$200,000.

Should you have any queries, please do not hesitate to contact Mr. Charles Tapper or the writer.

Yours very truly,

TOUCHE ROSS &amp; CO.

  
 V. A. Blair,  
 Partner
VAB/jf  
encl.

BURNABY PUBLIC LIBRARY

Present Value Calculation of Net Benefit Related to Installation of  
Universal Library System's Automated Circulation Control System

	1981	1982	1983	1984	1985	1986	1987	1988	1989	TOTAL
In Constant 1981 Dollars	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Benefits	-	-	93	158	176	192	209	227	243	1298
Less Operating Costs	-	31	83	86	86	86	86	86	86	630
Capital Costs	(10)	(31)	10	72	90	106	123	141	157	668
Net Benefit/(Cost)	(10)	(322)	(56)	72	90	106	123	141	157	301
Less B.C. Government Grant	-	291								291
Present Value of Net Benefit/(Cost) using discount rate of:	(10)	(313)	(53)	66	80	91	103	115	124	203
5%	(10)	(307)	(48)	62	74	83	92	100	106	152

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