

TO: CITY MANAGER 1997 OCTOBER 22
FROM: DIRECTOR FINANCE FILE: I53-27
SUBJECT: The Year 2000 and Computer Systems
PURPOSE: To inform Council of the status of Burnaby's computer systems relative to the change of the millennium.

RECOMMENDATION:

1. THAT this report be received for information purposes.

SUMMARY:

Much has been written about the Year 2000 problem and computer systems. This report summarizes the situation in the City and provides a status update on the efforts to correct affected programs.

The City has developed a method of conversion that has proved extremely efficient. As a result we are well ahead of schedule on Year 2000 implementation and the project will be completed for significantly less cost than estimates that are being used for other businesses.

INTRODUCTION:

Council, at its Regular Meeting on 1997 October 06, requested a summary of the Year 2000 problem and a progress report from Information Services on solving these problems.

REPORT

Most older computer systems were written using a two-digit year to save storage space on the computer. For example, in some computer systems 04-25-97 is used to represent Apr-24-1997. These computer systems will have a problem after Dec-31-1999. As the millennium changes computers with two digit years will represent Jan-01-2000 as 01-01-00. The computer will not be able to tell if the 01-01-00 date is referring to 1900 or 2000. This problem will not occur in computer systems which use a 4-digit year.

The date recognition problem will not occur in all computer systems. Typically it only affects older computer systems which were written when storage was very expensive and saving two characters on every transaction was critical. These old computer systems will have to be modified or replaced before Dec-31-1999. This problem affects every business and government in the World and has become known as the Year 2000 problem.

The methodology chosen by the City of Burnaby has been called the Fixed Window Technique. This technique was particularly appropriate for Burnaby for several reasons:

1. Information Services has access to the source code for almost all of the applications.
2. The application development environment is well organized and controlled, and Information Services can with confidence modify and rebuild all applications.
3. The technique requires modifications to fewer programs than other approaches, and the modifications are much simpler than other approaches.
4. Where applications interface with each other, a change in one application does not affect other applications. This is particularly important, for example, in General Accounting (GAS).
5. Application databases are not affected, so there is no major conversion process required.
6. Year 2000 updates can be implemented easily with no requirement to shut down applications.
7. In the event of problems occurring after implementation, only the items with problems would have to be addressed. All of the rest of the implementation can be left intact.

Some consideration was given to converting application databases so that all years were stored as four digits. This methodology was rejected for the following reasons:

1. The approach would require far more extensive and complex programming changes.
2. New programs would have to be written to convert existing application databases.
3. Where applications interface with each other, a change in one application would require a change in other applications. This is particularly important, for example, in General Accounting (GAS).
4. The Year 2000 upgrades would all have to be released at one time, and would include major database conversion tasks, plus all the other applications that interface with the application being upgraded.

5. Implementation would have to be carefully scheduled. Larger applications such as General Accounting would have to be converted over a weekend with a significant amount of testing of the converted data, including application interfaces.
6. All backup database tapes would be rendered practically useless. The data could not be used unless it was first restored and then converted.
7. Many applications use a common Burnaby Audit System; the database changes would have to be reflected in the audit files, and all existing audit history files would be rendered useless.
8. All test databases would have to be converted on the same schedule as the live database.
9. All test programs would have to be rebuilt on the same schedule as the live database.
10. In the event of problems occurring after conversion, all of the implementation would have to un-installed, including related changes in other applications.

Progress

The Year 2000 project is proceeding ahead of schedule. Programming changes for all applications are completed except the following:

1. Changes for HRS are starting this month, and are expected to be completed by the end of November.
2. Discussions are ongoing with BC Tel/Aspen concerning the Voice Mail System.
3. Progress has been limited on Operations Systems (OPR). This task has now been assigned to a Systems Analyst.
4. Water Quality and Health Inspections were expected to depart with the Health Department. So work on these two projects has not yet begun. In the event, these systems remain with the City, a Systems Analyst will be assigned to make them Year 2000 compliant.

The programming changes will be released to production after the users of each application have had a chance to perform adequate testing. IS development staff will contact the users for each application to define suitable test plans.

Background

During the investigation phase, the following statistics were obtained:

- a total of 70 systems were investigated.
- 25 systems are affected by the Year 2000.
- 19 systems are in-house products written in COBOL on the VAX platform. These systems are being modified by IS staff.
- 1 system (LTC) belongs to the Health Region and may not need to be upgraded.
- 1 system (PES) is a package and the vendor has promised to fix the Year 2000 problem in their new release next year.

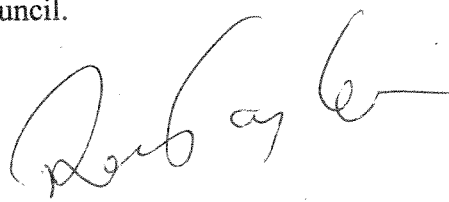
Current Status

	<u>DESCRIPTION</u>	<u>STATUS</u>
1.	APP Application routines used by all other applications	COMPLETE
2.	BQI Batch Queue Interface - used by all other applications	COMPLETE
3.	CCS Core Cash System (cash registers)	Cosmetic changes only; Waiting for estimate from Vendor.
4.	DOG Dog Tag System	Programming complete; Waiting for integration testing.
5.	ELC Electronic Cash System (cash registers)	Cosmetic changes only; Waiting for estimate from Vendor.
6.	FST Financial Statements System	Programming complete; Integration test plan is being prepared.
7.	GAS Financial Statements System	Programming complete; Integration test plan is being prepared.

<u>DESCRIPTION</u>	<u>STATUS</u>
8. HEI Health Inspection	System to be replaced by regional health board.
9. HRS Human Resources System	Programming is in progress.
10. HWQ Health Water Quality	System to be replaced by regional health board.
11. LIM Local Improvement System	Programming complete; Waiting for integration testing.
12. LTC Long Term Care	System to be replaced by regional health board.
13. MCS Museum Cash System (cash registers)	Cosmetic changes only; Waiting for estimate from Vendor.
14. OPR Operations Routines	Investigation Phase (not expected to be a large task).
15. PAY Payroll (part of HRS)	see HRS
16. PES Parking Enforcement System	Vendor to provide changes by end of 1998.
17. PIM Purchasing Information Mgmt	COMPLETE
18. POS Point of Sale - cash system reporting	Programming complete; Waiting for integration testing.
19. PTS Property Taxation System	Programming is complete; Waiting for integration testing.
20. REF Refuse Billing System	Programming is complete; Waiting for integration testing.
21. UTL Utility Routines	COMPLETE
22. VOT Voter Registration System	Programming is complete; Waiting for integration testing.
23. ZSS HRS Security System	see HRS

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| 24. ZWS | HRS Reporting System (ZWriter) | Investigation is complete;
Programming changes will be started in
October. |
| 25. VOI | Voice Mail System | Subject of discussions with BC Tel. |
| 26. HWQ | Health Water Quality | Work has yet to begin |
| 27. HEI | Health Inspections | Work has yet to begin |

This report is submitted for the information of Council.

for 
Rick Earle
DIRECTOR FINANCE

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