

TO: CITY MANAGER

DATE: 1993 06 02

FROM: DIRECTOR ENGINEERING/
INFORMATION SERVICES DIRECTOR

FILE: 20-05-02

SUBJECT: MAINTENANCE MANAGEMENT SYSTEM

PURPOSE: TO PROVIDE FUNDING FOR THE PURCHASE OF MAINTENANCE MANAGEMENT SOFTWARE AND RELATED EQUIPMENT.

RECOMMENDATION:

1. **THAT** a bylaw be brought down to appropriate \$140,000 from Capital Reserves for the acquisition of computer hardware, communications equipment and software as outlined in this report.

REPORT

BACKGROUND

The gradual aging of the City's infrastructure has been a growing concern for a number of years. The cost of repairing, upgrading and replacing the entire aging municipal infrastructure will be a significant ongoing budgetary consideration to the City.

In the search for improved and more complete solutions to the problem, the Infrastructure Management System (I.M.S.) approach has been adopted to develop comprehensive strategies to meet current and future needs.

I.M.S. is a total concept system containing many units which may include roads, drainage, sewer, water, traffic, physical plant, computer mapping/G.I.S. and maintenance management.

The scope of I.M.S. would eventually include all information pertaining to the infrastructure, its construction, replacement, operations and maintenance. This would include the infrastructure inventory, condition/capacity assessment, improvement programs, maintenance schedules and history, work orders, job costing, resource allocation, project management, etc. The full scope would evolve through a number of stages over a number of years. Through the corporate computer strategic plan study, the implementation of a computerized maintenance management system in the Engineering Department has been identified as a high corporate priority item.

Currently, the Engineering Department maintains approximately 840 km of roads, 676 km of watermains, 541 km of sanitary sewers and 420 km of storm sewers. Most of the maintenance records, data and repairs are scheduled and maintained manually. To meet the growing demand for higher maintenance service levels and the need to develop optimum strategies to maintain our infrastructure in the most cost effective manner, a computerized Maintenance Management System (M.M.S.) would provide the tool for engineering staff to develop the appropriate strategies.

ITEM	7
MANAGER'S REPORT NO.	37
COUNCIL MEETING	93/06/07

The M.M.S. is a comprehensive system consisting of a number of components including sewer, roads, water, etc. One of these components is the sewer system in Burnaby which consists of 541 km of underground pipes and pump stations. It is this area where the need to develop a complete inventory, data collection, preventative work planning and work scheduling has the highest priority for engineering operations.

PROPOSED SYSTEM ACQUISITION

The first phase of the implementation plan of the M.M.S. system includes wastewater collection and plant maintenance for the sanitary sewer system. The funding requested at this time is for software and related hardware purchases to implement Phase I as detailed in Appendix A. The recommended system will be able to integrate with the future upgraded G.I.S./mapping system as will the following phases. Subsequent phases for the roads, drainage and water systems will be initiated upon the successful implementation of the sewer components. Appendix B details the benefits provided of the individual components proposed at this time.

FINANCING

Appendix A identifies the costs associated with the hardware and software components required for Phase I implementation of the M.M.S.. The total cost of Wastewater Collection and Plant Maintenance Modules included in Phase I is \$140,000. Provisions for these expenditures are included in the 1993 Capital Budget.

CONCLUSION

Acquisition of Phase I of the proposed Maintenance Management System will allow the Engineering Department to manage the long term maintenance, renewal and rehabilitation of the sanitary sewer system in the most cost effective manner. It is recommended that a Capital Replacement Reserves Bylaw in the amount of \$140,000 be brought forward to finance this acquisition.


INFORMATION SERVICES DIRECTOR


DIRECTOR ENGINEERING

BCD:mp

- cc: Director Engineering
- Director Finance
- Director Administrative & Community Services

Appendix A

Description	# of Item	Unit Price	Extended Cost	Sub Total	Total
Communications Equipment					
Zyplex 900 - Eng. GIS/Admin/Traffic	1	38,333	38,333		
Ethernet Repeater - Eng. Wrks Yard	1	2,265	2,265		
Ethernet Cards - for Eng. Wrks Yard PCs	4	275	1,100		
Total Communications					41,698
Communications Software					
Print Server Software	1	1,130	1,130		
Pathworks Coexistence Software	1	350	350		
Pathworks Licences (10)	4	267	1,068		
Total Communications Software					2,548
Misc. PCs & Equipment					
UPS Power Conditioner	1	450	450		
					450
IMS Software					
Wastwater Collection Module (Server)	1	16,000 -	16,000		
Plant Maintenance Module (Server)	1	10,000 -	10,000		
IMS Client Licensing (8 seats)	8	1,200 -	9,600		
Oracle Data Browser (2 Seats))	2	599 -	1,198		
Oracle RDBMS (8 Seat Licence)	8	500 -	4,000		
Novel (Server - 10 Seat Licence)	1	2,495	2,495 -		
User Defined Variable Data Screen	1	4,500 -	4,500		
Total Software (U.S. Funds)				47,793 -	
U.S. Exchange @ 27%				12,904	
Total Software in Cdn Funds					60,697
Professional Fees & Services					
Installation & Training (4 days)			2,400 - -		
Project Management Fees			4,000 - -		
Annual Service and Maintenance			4,000 -		
Service Connection Option			3,500 -		
Travel Expenses (Not to Exceed)			1,500 - - -		
Total Prof. Fees & Services (U.S. Funds)				15,400 -	
U.S. Exchange @ 27%				4,158	
Total Prof. Fees & Services in Cdn Funds					19,558
Total Comm. Softwr & Prof. Fees					124,951
Applicable Taxes					
PST @ 7%					8,013
GST @ 3% (7%-4% Rebate)					3,678
Total Taxes					11,691
Total IMS System Costs					136,642
Contingancy					3,358
Total IMS Project Costs					140,000

* Denotes U.S. Funds
 ** PST is not applicable to these items
 *** GST is not applicable to these items

ITEM 7
 MANAGER'S REPORT NO. 37
 COUNCIL MEETING 93/06/07

Appendix B

ITEM	7
MANAGER'S REPORT NO.	37
COUNCIL MEETING	93/06/07

BACKGROUND DETAILS

The system supports many operations undertaken within the Engineering Department. The system components and their functions are detailed below.

WASTEWATER COLLECTION MODULE

This module is used to control and track the underground maintenance for sanitary sewer lines. It provides staff with a control and planning tool to enhance daily operations, reduce the cost of system repairs, and to plan for rehabilitation and replacement in the most cost effective manner. The objectives of the Wastewater Collection Management System are to:

- Track maintenance activities to help identify problem areas.
- Establish a complete inventory of manhole to manhole segments along with detailed information regarding pipe size, type, length, year built, etc.
- Capture and maintain a history of maintenance performed.
- Schedule preventive maintenance activities.
- Forecast maintenance work load requirements.
- Record & track complaints, generate custom letters and/or service line work orders to inspect, repair, or install.
- Track stoppages and report excessive stoppage.
- Provides cross-referencing by Manhole, Address, Service Line, etc.
- Gather information from routine inspections to rate the condition of the main lines to undertake preventive maintenance activities and pin-point bad segments.

PLANT MAINTENANCE MODULE

This system is designed to support the maintenance repair activities for sanitary sewer pump stations. It provides staff with the information necessary to schedule maintenance and overhaul activities. Additionally, it maintains historical records for preventive maintenance. The system provides the following capabilities:

- Scheduling of preventive maintenance activities for electrical and mechanical equipment.
- Schedule parts acquisition for maintenance and overhaul activities.
- Maintains a history of maintenance activities.
- Generate work orders.
- Provide detailed information relating to equipment status and condition.
- Maintains an activity list for associated tasks with references to maintenance manuals.
- Provides a total inventory of all equipment by facility and location.