

January 24, 1996

SUBJECT: VANCOUVER AQUATIC CENTRE HEATING AND VENTILATION SYSTEM

#### RECOMMENDATION

THAT J.M. Bean and Company be hired to do the design for the proposed improvement and repairs to the heating and ventilation system at the Vancouver Aquatic Centre (VAC).

#### BACKGROUND

The VAC was constructed in 1972. The system was not designed to be energy efficient and considerable energy is wasted. The natural gas radiant heating elements around the perimeter pool deck malfunctioned and are now illegal in swimming pools because of the exposed flame and corrosive environment. Without the radiant panels, the air in the natatorium is often too cool, making the patrons uncomfortable and wasting pool water heat by drawing heat from the water. Some equipment requires repairs. Offices constructed after 1972 and some original rooms were never properly heated and ventilated. During winter, the heating system is inadequate and staff mitigate the problems by partially closing fresh air intakes and recirculating warm, stale attic air.

#### DISCUSSION

J.M. Bean and Company were hired to investigate these problems and they have prepared a report and cost estimate. The estimated total project cost for the proposed work is \$500,000. A list of the proposed work and estimated costs are appended.

By installing a new gas flue economizer to capture waste heat from the existing boilers and heat recovery coils to capture heat from the exhaust air, more heat will be available to heat the air in the natatorium. New hot water radiant panels will further increase patron comfort and compensate for the heat loss through the walls. A new energy efficient boiler will provide the heat for the new radiant panels.

The quality of air in the offices and some rooms is poor. Modifications will be made to the system to deliver air from a properly engineered system. The air handling equipment is nearly 25 years old. Repairing and servicing this equipment will be included in the contracted work.

#### ENVIRONMENTAL IMPLICATIONS

A considerable portion of this work involves conserving energy by capturing waste heat exhausted to the environment. The new boiler to provide hot water to the new radiant panels will be a modern energy-efficient unit operating in excess of 90% efficiency.

#### FINANCIAL IMPLICATIONS

The 1994 - 1996 Capital Plan allocated \$325,000 (including Park Board overhead) to upgrade the VAC mechanical system, of which \$300,000 remains. The \$500,000 project will be funded by supplementing the budget with \$200,000 transferred from an unallocated balance in the 1994 - 1996 Capital Plan General Pools account for mechanical and structural repairs because of the high priority given to the VAC work.

The payback for the energy conservation work varies between 3 and 5 years. Furthermore, B.C. Gas is presently offering a substantial credit to purchase an energy efficient boiler.

#### SCHEDULE

The schedule for this project is tight because the work must be installed during the VAC summer closure period. The very latest the pool can re-open is September 15.

#### JUSTIFICATION

J.M. Bean and Company is recognized as an excellent mechanical engineering consultant and has pool experience. Their preliminary work has been well done and there is no reason not to retain them to complete the work. Their hourly rates and \$46,000 maximum fee are reasonable and within industry standard. Proposals received from two other consultants noted similar fees.

The VAC heating and ventilating system is deficient in performance and energy consumption and in serious need of upgrading and repair.

Prepared by:

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