

ITEM	4
MANAGER'S REPORT NO.	53
COUNCIL MEETING	90/09/04

TO: MUNICIPAL MANAGER 1990 AUGUST 29

FROM: DIRECTOR ENGINEERING

SUBJECT: MERCURY VAPOUR STREET LIGHTING CONVERSIONS

PURPOSE: To advise Council of the details of the B.C. Hydro Power Smart Efficient Roadway Lighting program, the costs of converting the Municipal lighting to high pressure sodium, and the potential cost savings upon completion of the conversion.

RECOMMENDATION:

1. THAT staff proceed with the implementation of a program to convert all Municipally-owned mercury vapour lights to high pressure sodium.
2. THAT a Capital Works Machinery and Equipment Bylaw be brought down in the amount of \$1.2 million from Capital Reserves for conversion of all Municipally-owned mercury vapour street lights to high pressure sodium.

REPORT

1.0 INTRODUCTION

In a report appearing on the agenda for the Council meeting on 1990 May 28, staff advised Council of BC Hydro's intention to encourage the conversion of mercury vapour (MV) street lights to the much more efficient high pressure sodium (HPS) fixtures as part of their Power Smart Efficient Roadway Lighting Program. Council endorsed the first step of this program which was the conversion of the overhead lights leased from BC Hydro as recommended in that report. At that time, Council was also advised that staff were in the process of analysing the details of the incentive plan offered by BC Hydro regarding the conversion of the Municipal street lighting system. We have now completed our analysis and have compiled estimates of the costs and potential savings as well as a recommended procedure to implement a conversion program.

2.0 POWER COSTS

Burnaby currently has a total of 7,391 ornamental street lights in operation of which 6,451 are mercury vapour. All new lights installed are high pressure sodium.

For comparison purposes, we have assumed conversion to HPS fixtures with equivalent light output to the existing MV fixtures. This would require replacement of 175w MV with 70w HPS, 250w MV with 100w HPS, and 400w MV with 150w HPS.

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Prior to conversion, the existing light levels would be checked for adequacy. Based on these assumptions, we have estimated future energy costs and savings which are indicated on the following table.

Annual Power Costs

Current	\$480,000	
After Conversion	<u>229,000</u>	
Annual Power Cost Savings After Conversion	\$251,000 =====	110

3.0 B.C. HYDRO INCENTIVE PROGRAM

Hydro will provide a rebate of \$300 per kilowatt saved. This rebate is calculated by taking the difference in lamp wattage multiplied by the number of lamps multiplied by \$300. Based on replacement wattages proposed above, we would save approximately 1307.54kw of electricity qualifying us for a total rebate of \$392,260.50. This is a one time rebate payable upon completion of the entire conversion project.

4.0 CONVERSION COSTS

6,451 Fixtures @ \$180 ea =	\$1,161,180.00
Less Hydro Rebate Payable	<u>392,260.50</u>
Upon Completion of the Project	
Net Replacement Cost	\$ 768,919.50 =====

5.0 DISCUSSION AND CONCLUSION

We have been advised that the incentive program will have a five year time limit to allow for completion of the conversions. This allows us several options to achieve the complete conversion of the street lighting system. The two most viable options are:

Option 1: Perform all conversions in one year.

Advantages:

- High volume may reduce unit costs.
- Allows maximum immediate return on energy savings.
- Allows us to collect the full B.C. Hydro rebate in the first year.

Disadvantages:

- Requires \$1.2 million capital expenditure in the first year (which will be partially offset by the Hydro rebate). If capital funds are borrowed from internal reserves the repayments will reduce future energy savings.

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Option 2: Perform conversions over five year period.

Advantages:

- Requires smaller annual capital outlay.
- Conversions could mirror the current five year re-lamping process.

Disadvantages:

- B.C. Hydro rebate collected over 5 years.
- Lower initial energy savings.
- Lower annual volume may increase unit replacement costs.

We have analyzed the cost implications of both options and found that there is a significant financial advantage to performing the conversion in one year. Accordingly, we recommend Option 1 to convert all the Municipally-owned mercury vapour lights to high pressure sodium by the end of 1991. This option will result in greater initial energy savings and recover the full B.C. Hydro rebate sooner. Funds to finance this expenditure will be drawn from Capital Reserves.

The Director Finance concurs with the recommendation of this option.

The proposed incentive program by B.C. Hydro is an excellent opportunity for the Municipality of Burnaby to renovate its street lighting system, reduce its annual operating costs, and to demonstrate its commitment to energy conservation.


DIRECTOR ENGINEERING

RB:je

cc: Asst. Director Eng., Traffic & Eng. Systems
Director Finance

