

EDMONTON PUBLIC SCHOOLS

November 12, 2003

TO: Board of Trustees

FROM: A. McBeath, Superintendent of Schools

SUBJECT: Energy Conservation Program

ORIGINATOR: A. Habinski, Executive Director

RESOURCE

STAFF: Dick Divine, Brian Fedor, Sultan Ibrahim, Roger Montpellier, Dean Power,  
Larry Schwenneker

INFORMATION

This report is being brought forward to Board as information with respect to the next set of schools that have been identified for energy conservation retrofitting.

In June of 2002, the district accessed debenture borrowing in the amount of \$1,260,318 for lighting energy conservation retrofits at twenty-two schools. This program has proven successful from three main perspectives:

- Learning environment: significant improvements have been made in the quantity and quality of lighting which in turn affects the learning environment in schools.
- Energy savings: the retrofits are resulting in reduced consumption, which in turn reduces utility costs. The reduced cost means that the retrofits are self-paying as the savings offset the project costs over a period of time.
- Environmental impacts: the environment is impacted since a reduction in consumption reduces emissions at generating stations.

The lighting level and quality of illumination has been improved in all the retrofitted schools and feedback from the schools is very positive. Technical and operating improvements have also been realized with ballast hum and lamp flicker being eliminated.

The District has been standardizing all material, equipment and fixtures aggressively over the last few years to maximize potential savings. Ongoing maintenance savings will be realized due to the overall reduction in ballasts and lamps. The new lamps being installed have a rated life of 36,000 hours compared to the removed lamps at 20,000 hours.

There are also other significant environmental benefits to the retrofit programs:

- Lamp recycling has avoided approximately 430,000 mg of mercury being disposed of in landfills. Over 7,000 ballasts were removed and those containing PCB's were disposed of at Swanhills Waste Treatment Centre.
- The reduction in greenhouse gases realized by the energy savings in the retrofitted schools are equivalent to planting 390,000 trees, removing 800 cars from the road or eliminating the operations of 192 households on an annual basis.

Twenty additional schools have been fully assessed for lighting retrofits and are being proposed as the next group of schools to be funded by debenture borrowing. The retrofit of the twenty schools is estimated to cost one million, three hundred forty thousand, five hundred dollars (\$1,340,500) and the payback period is 8.52 years.

The total cost and payback calculation includes a contribution from each school, which represents an amount equal to their annual expenditures on lighting repairs. The program also provides the school with no on-going energy retrofit maintenance costs over the life of the payback period.

A recommendation report addressing the debenture borrowing bylaw will follow this report for Board consideration.

Subject to Board approval on the debenture bylaw a request will be forwarded to Alberta Infrastructure and Alberta Learning seeking ministerial approval for the work.

LS:ct

APPENDIX I: Criteria – Selection of Schools for Lighting Upgrades

APPENDIX II: List of Schools

## APPENDIX 1

### CRITERIA – SELECTION OF SCHOOLS FOR LIGHTING UPGRADES

- Schools that have identified lighting retrofits in their school priority list of their Major Maintenance Plan submission.
- Schools with a high incidence of special needs students. The students tend to be affected by the low flicker rate and ballast hum associated with older lamps and fluorescent ballasts.
- Schools with small or no classroom windows.
- Schools identified by Facilities Maintenance as having higher than average lighting maintenance costs. Previous five year maintenance costs associated with the school lighting are reviewed.
- Schools identified are audited to identify problems associated with the lighting. The most common problem is low light levels as a result of the de-lamping program in the 1980's.
- Once schools are identified as meeting the above criteria a list of potential schools is developed and an Energy Retrofit Program is developed. The Energy Retrofit Program audits the schools for technical solution and cost.
- Utilization and special conditions are reviewed with Planning and Accommodation Department prior to final list selection for inclusion in the program.
- Schools identified as needing retrofits are put together into groups so as to allow those schools with an economic payback beyond 10 years to proceed.

**APPENDIX 2**

<b>School</b>	<b>Estimated Cost (\$)</b>	<b>Avg Payback (yrs) *</b>	<b>Area Utilization (March 25,2003)</b>
Abbott	46,000	7.33	57%
Allendale	87,000	13.14	55%
Belmead	42,000	6.86	44%
Belvedere	76,000	8.50	52%
Bissett	39,000	4.27	88%
Brookside	43,000	9.29	73%
Dickinsfield	54,000	7.75	66%
Evansdale	44,000	6.60	96%
Greenfield	62,000	7.60	95%
John Barnett	29,000	7.32	83%
Kensington	55,000	8.33	70%
Lansdowne	39,000	8.14	66%
Lymburn	65,000	8.33	87%
Malcolm Tweddle	40,000	7.25	82%
Northmount	46,000	6.37	64%
Overlanders	44,000	6.20	67%
Queen Elizabeth	280,000	16.92	48%
Riverbend	63,000	6.27	101%
Thorncliffe	49,000	7.66	63%
Westbrook	48,500	5.00	94%

Average Payback (including Maintenance Contribution)

**8.52 years**

Estimated Cost	\$ 1,251,500
Contingency(5%)	\$ 62,000
Sub Total	\$ 1,313,500
GST @ 2.24%	\$ 27,000
<b>Total Estimated Cost</b>	<b>\$ 1,340,500</b>

*\* Calculated with Maintenance Contribution included*

*-Blending of various payback periods enables the District to enhance the learning environment while maintaining the desired financial commitment of a ten year payback through energy savings*