

ITEM 1
MANAGER'S REPORT NO. 40
COUNCIL MEETING 1979 05 28

RE: ENERGY CONSERVATION PROGRAM
PROGRESS REPORT #3
(ITEM 11, REPORT NO. 72, 1978 OCTOBER 16)
(ITEM 1, REPORT NO. 8, 1979 JANUARY 29)

Following is a report from the Municipal Engineer on the Municipality's Energy Conservation Program.

RECOMMENDATION:

1. THAT the report of the Municipal Engineer be received for information purposes.

* * * * *

TO: MUNICIPAL MANAGER 79 05 23
FROM: MUNICIPAL ENGINEER
SUBJECT: PROGRESS REPORT #3 - ENERGY CONSERVATION PROGRAM

RECOMMENDATION:

1. THAT this report be received for information purposes.

REPORT

We defined more specifically the prime areas of importance to the Corporation in the matter of energy conservation in Progress Report #1 (Council Meeting 78 10 16). In Progress Report #2 (79 01 29) we pointed out how we were embarking on the important task of completing energy audits of the principal energy uses in the various Municipal Departments in both physical plant and mobile equipment.

With the primary audits (basically of the "walk-through" type) now complete, we thought Council should be made aware of what has been accomplished together with some appreciation of the methods and reasoning employed by your Staff Committee.

Rather than attempt to provide only a sample of the audit analysis, it was felt to be more appropriate (for at least this one report) to provide Council with a copy of the complete analyses done to date; these form an Attachment to this Report.

More work remains to be done on the audits, especially with respect to a more thorough review of developing strategies for further energy conservation. This work will not be conducted entirely by your Staff Committee but more appropriately by the person or persons responsible in each Department. Your Staff Committee, however, will continue to be very useful to the Department in the form of providing guidance and direction in recognition of overall Corporation aims and objectives in energy conservation.

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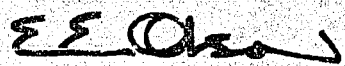
While more exhaustive analyses are conducted on the energy audits, it is considered appropriate for your Staff Committee to turn its attention to some other rather interesting areas of energy conservation, such as:

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- (1) Education of the public in what the individual citizen can do in energy conservation.
- (2) Examination into the extent to which architects and planners are requesting that new buildings (private sector as well as public sector of the economy) reflect the "state of the art" in energy conservation and incorporate some of the latest innovations into those buildings.
- (3) The possibility of developing an "Operation Recovery Project" for Burnaby similar to a demonstration project of that name carried out in Texarkana, Texas. Very simply put, Texarkana's project consisted of an energy audit, crime and fire prevention surveys, and an interior structural soundness survey of homes, schools, churches, and commercial enterprises.

It would not be necessary, of course, for Burnaby to incorporate all of these particular elements in the project but others may be substituted, depending on relative priorities of the various elements.

Your Staff Committee will be stepping up its frequency of meetings to deal with the foregoing items and other matters deemed appropriate; it should be possible for us to submit the next Progress Report to Council by its meeting of 79 06 25.



E.E. Olson, P. Eng.
MUNICIPAL ENGINEER
CHAIRMAN, ENERGY CONSERVATION
STAFF COMMITTEE

EEO/ch
Atts.

- c.c. () Chief Building Inspector
 () Purchasing Agent
 () Parks and Recreation Administrator
 () Director of Planning
 () Municipal Treasurer

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REPORT FROM ED WILLIAMS, SERVICE CENTER SUPERINTENDENT

A REPORT ON ENERGY CONSERVATION

In late 1973 we started a study on Energy. At that time we had a hard look at the high usage of fuel.

We started with our half ton pickups, at which time we had 14. We found that we were using an average of 12 gallons of fuel a day per truck.

In 1973 we purchased one mini pickup. After a three month study, we found that we were using an average of 6 gallons of fuel per day. This meant a saving of 1,560 gallons of fuel a year. We now have replaced all of our half ton pickups with Mini's. Our pickup fleet is operating at a saving of 21,840 gallons of fuel less per year than it did in 1972, and our tire life has more than doubled.

We found that we could also cut the high usage of fuel on our Dump trucks. All of our land fill areas around Burnaby were closed, except for Stride Avenue, which meant that most round trips to the land fill would take from one half to one hour. Our trucks were too small, as two of them were two tons and the rest were three tons. The three ton trucks had a G.V.W. of 24,000 lbs, with a tare of 10,040 lbs. which gave a pay load of 13,960 lbs. Our two tons -- I won't even mention.

We replaced our Dump trucks with 5 tons. They have a G.V.W. of 33,000 lbs. and a tare of 11,935. That gave us a pay load of 21,065 lbs. For every two trips to the land fill we would gain one. We were moving more materials and using one third less fuel.

Since our purchase of the six 5 ton Dump trucks we feel that we save 7 gallons of fuel a day per truck moving an equal amount of materials. The saving of fuel on these units is 10,920 gallons a year.

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When we went to a zone system in our Sanitation Department we went from 16 cu. yd. rear loaders to 25 cu. yd. rear loaders. By this move we were able to cut two trucks from the fleet, saving us 26 gallons of fuel a day. The 26 gallons over 260 working days a year is a saving of 6,760 gallons of fuel.

The new 25 cu. yd. rear loaders are high density packers, that are capable of packing 900 lbs. per cu. yd. This cuts our trips to the land fill in half.

We went to auxiliary engines to operate the hydraulics. The auxiliary engine uses from 1.5 to 2 gallons of fuel in a 8 hour shift.

We feel that with the fewer trips to the land fill and the auxiliary engine, we are operating this Department at a saving of at least 30 gallons of fuel a day, which is 7,800 gallons per year -- plus the 6,760 gallons by cutting the two trucks. This is a total of 14,560 gallons per year.

Our equipment studies showed that two of the Rubber Tire Backhoes were larger than what was required. We replaced them with two 580 Case Backhoes. Not only did our productivity go up, but we are operating them on 10 gallons of fuel a day less. The saving on this is 2,600 gallons a year.

SUMMARY: Our productivity is a way up. Our total energy usage is down. We are using 49,920 gallons of fuel less per year than we were in 1973, with the same amount of equipment.

ENERGY CONSERVATION

In addition to what Ed Williams has reported there are two other areas where we are attempting, or contemplating energy savings.

1. Fuel Wastage Due to Vehicle Engines Left Running.

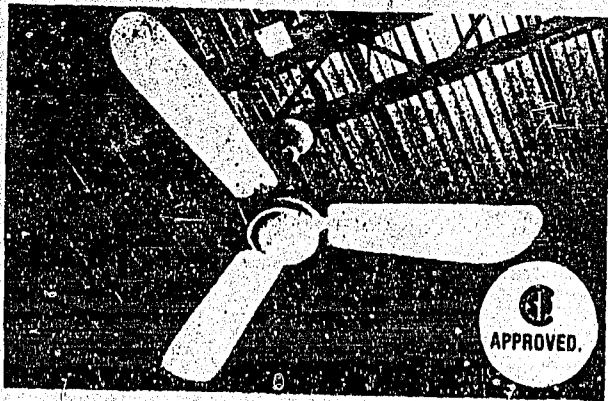
Drivers and supervisors are equally guilty both in Engineering and Parks. A verbal and written campaign will be stepped up to attempt to rectify this situation.

2. Heating in Buildings with High Ceilings

In most buildings with high ceilings the majority of the heat generated rises to the top of the building where it serves no useful purpose and can be lost through a poorly insulated roof.

The attached advertisement shows a ceiling fan system which we understand lives up to the claims made for energy saving.

This will be discussed with Mr. Frank Mehling of the Building Department.



**SAVE UP TO 30%
OF YOUR HEATING COSTS**
by using **BANVIL**
variable speed ceiling fans!

A practical solution to rising fuel bills
Banvil fans maintain a uniform floor to
ceiling temperature 24 hours a day
eliminating heat losses due to
stratified heat.

Most installations pay for
themselves in one year!

Always specify **BANVIL** quality

Free Professional Building Analysis
Send this card for further information.

ACT NOW
Increase Your
Profits
By Reducing Your
Energy Costs
and Reclaiming
Your Heat

Practically Loss

NAME	TITLE
COMPANY	
ADDRESS	CITY
PROV.	PHONE

ENERGY CONSUMPTION/CONSERVATION

FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSERVATION
<u>MUNICIPAL HALL</u>	<u>HEAT:</u> Kept at a comfortable temperature 16 hours per day (07:00 to 2300 hours) 5 days per week.	Supply and return fans are automatically controlled by a time clock, set to start at 0700 hours and to shut off at 2300 hours.	Thermograph analysis considered to determine heat loss - i.e. roof, window areas.
	<u>LIGHTS:</u> Used during operating hours. Security lights in building left on at night. Outside security lights operate on photo cell.	Lights in mechanical rooms, fan rooms and in unoccupied areas are off at all times. Lights are turned on only when occupied by personnel.	Analysis being made towards conversion of energy saving low wattage fluorescent lighting. Studies are being made towards reverting to independent light switching.
	<u>AIR-CONDITIONING:</u> Used during operating hours - 5 days a week. Temperature kept to a comfort range.	Chiller is controlled in conjunction with the supply and return air fans. The chiller however is turned off manually if temperatures turn cooler than the comfort range. <u>Note:</u> Both heating and cooling controlled by same time clock.	Consideration being given to additional controlling devices for further automation.
	<u>DOMESTIC HOT WATER:</u> Kept at constant temperature.	Consumption of energy is less than attempting to vary day/night temperatures.	
	<u>SMALL EQUIPMENT:</u> i.e. - Fans, vacuum pump (tube system), chilled water condenser pump.	Used only during operations.	
	<u>SUMP PUMPS:</u> Automatic system.	Automatic.	

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FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSERVATION
MUNICIPAL HALL; (Cont'd.)	<u>GROUNDS LIGHTING/PLAZA LIGHTING</u>	The lights are operated on a photocell and are fully automatic.	
	<u>PEDESTRIAN BRIDGE LIGHTS:</u>	The lights are operated by a time clock.	Damage to the lights has been extensive through abuse and vandalism. Due to the foregoing, the operation of lighting in this area has been discontinued.
	<u>EMERGENCY GENERATOR:</u> Diesel operated. Supplies power for the essentials - i.e. boiler & related equipment, limited lighting, fan control circuits, hot water htrs., all circulating pumps, zip tube blower, panel J, emergency lighting and elevator control circuit.	This generator is operated manually on condition of a power failure.	

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FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSERVATION
<u>JUSTICE BLDG.</u>	<u>HEAT:</u> Kept at a comfortable temperature 12 hours per day (0700 to 1900 hours)- General A/H 24 hours per day for the multi-zone unit.	Supply and return fans are automatically controlled. Multi-zone unit feeding the R.C.M.P. is operated 24 hours daily. General A/H unit operates from 0700 to 1900 hours and is controlled on a time clock.	Thermograph analysis is being considered to determine heat loss - i.e. roof, window and door areas.
	<u>LIGHTS:</u> Used during operating hours in the courtroom and administration areas. R.C.M.P. and administration lighting is on a 24 hour basis.	Lights in mechanical rooms and unoccupied areas are off at all times. Lights are turned on only when occupied by personnel.	Analysis being made towards conversion of energy saving low wattage fluorescent lighting. Studies are being made towards reverting to independent light switching.
	<u>AIR-CONDITIONING:</u> Used 7 days a week in the R.C.M.P. and administration area. Courtroom and administration areas are operational 5 days a week.	Chiller on the multi-zone servicing the R.C.M.P. areas operates from 0700 hours to 1530 hours and is turned on manually. The courtroom and administrative area is operated on a time clock from 0700 hours to 1530 hours 5 days a week.	Investigations are being made for putting the multi-zone unit back on a time clock system. Studies being made for further automation with energy saving controlling devices.
	<u>DOMESTIC HOT WATER:</u> Kept at a constant temperature.	Consumption of energy is less than attempting to vary day/night temperatures.	
	<u>SMALL EQUIPMENT:</u> i.e. - Fans.	Used only when required.	
	<u>SUMP PUMP:</u> Automatic system.	Automatic.	

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FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSERVATION
<u>JUSTICE BLDG.</u> (Cont'd.)	<u>PARKING LOT LIGHTS:</u> The lights are operated on a time clock and are set to come on at dusk and off at dawn.	The clock is adjusted quarterly to compensate for the changes in daylight hours.	
	<u>CHRISTMAN TREE LIGHTS:</u>	These lights are operated during the season and controlled by an independent time clock. Times of operation are from 1700 to 2300 hours.	
	<u>EMERGENCY GENERATOR DIESEL OPERATED:</u>	This generator is on automatic operation. Upon power failure a 30 second time lapse occurs before the generator comes on service. It supplies power similar to the essentials as indicated in the Municipal Hall.	
	<u>COURT ROOM AIR-CONDITIONING AND LIGHTS:</u>	Each court room air-conditioning unit is controlled independently by a thermostat and switch. They are utilized only during court sessions and are turned off when the individual courts are not in use. Lights in the court rooms, clerks registry and all related offices are turned off manually when not in use.	
	<u>R.C.M.P. SHREDDER:</u> Electrically operated.	This equipment is utilized as required and manually controlled.	

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FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSERVATION
WEST BUILDING	<u>HEAT:</u> Kept at a comfortable temperature 12 hours per day (0700 to 1900 hours) 5 days per week.	Supply and return fans are automatically controlled by a time clock set to start at 0700 hours and to shut off at 1900 hours.	Thermograph analysis considered to determine heat loss - i.e. roof, windows and door areas. Studies are being made to upgrade existing mechanical and control system.
	<u>LIGHTS:</u> Used during operating hours. Security lights in building left on at night. Outside security lights operate on time clock.	Lights in mechanical rooms and unoccupied areas are off at all times. Lights are turned on only when occupied by personnel.	Analysis being made towards conversion of energy saving low wattage fluorescent lighting. Studies are being made towards reverting to independent light switching.
	<u>AIR-CONDITIONING:</u> Used during operating hours, 5 days a week. Temperatures maintained at a comfort range.	Chiller is controlled in conjunction with the supply and return fans. The chiller is turned off manually if temperatures turn cooler than the comfort range. <u>Note:</u> Both heating and cooling controlled by the same time clock.	Studies being made towards further automation with energy saving controlling devices.
	<u>DOMESTIC HOT WATER:</u> Kept at a constant temperature.	Consumption of energy is less than attempting to vary day/night temperatures.	
	<u>SMALL EQUIPMENT:</u> i.e. - Fans chilled water condenser pump.	Used only during operations.	
	<u>SUMP PUMP:</u> Automatic system.	Automatic.	

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FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSERVATION
WEST BUILDING (Cont'd.)	<u>JAPANESE GARDEN POOL CIRCULATING PUMP:</u>	The pump is operational on a manual switch and is placed into operation during the summer months. This pump is removed for the off season. The pump is run 24 hours daily during the season.	Consideration is being given to tying this into the existing photocell system of the Municipal Hall, for operation from dawn to dusk.
	<u>EMERGENCY GENERATOR:</u> Diesel operated.	Similar operation as the Justice Building.	

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FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSERVATION
GENERAL	<u>EMERGENCY LIGHTING UNITS:</u>	These are wet cell battery pack units and are plugged into an A/C outlet for continual automatic recharge. They operate only upon power failure for a period of 20 minutes to allow for evacuation of personnel.	

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PARK FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSERVA
Recreation Centres: Bonsor Charles Rimmel Hasburn Willingdon Edmonds House Confederation House	Lights: Used only as required during operating hours. -Security lights within building left on all night -Outside security lights left on all night	-Lights are shut off when not required for security or recreational use. * See section in Security Lighting.	
	Heat: Kept at comfortable temperature (70°F?) 24 hours a day. Some buildings have to be set higher to maintain comfortable temperature. Edmonds and Confederation kept slightly warmer.	-No explicit policy on what temperature the building should be kept at during day and/or night.	-thermograph analysis to determine the heat loss occurring in recreation centres.
	Hot Water: Kept at constant temperature.	-Constant temperature is less energy consumptive than varying the day/night temperature.	
	Small equipment: e.g., coffee urns, vacuums, polishers.	-Used only when required.	
Burnaby Lake Pavilion (same as above plus:)	Sewer pumps: automatic system to pump sewage to sewer system as required.	-Automatic system.	
Indoor Pools: Bonsor C.G. Brown	Pool heating: water kept at constant temperature 30°C		-Not realistic to lower temperature in evenings.
	Water/filter pumps: used as required - Set on automatic system.	-Automatic system.	
	Building heating: Kept at comfortable temperature 24 hours a day.	No explicit policy on building temperature for day and/or night.	-Thermograph analysis to determine heat loss from pool buildings.
	Lighting: Used as required during operating hours. -Some lights on at night.	-Lower lighting levels maintained during the night.	
	Underwater Lighting: Left on 24 hours a day.		-To turn underwater lights out at night would save energy but may cause safety problems and would lead to greater incidence of burn-out at \$60. replacement cost.

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PARK FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSERVATION
Indoor Pools-Continued	Hot water: For showers, cleaning purposes - Kept at constant temperature.	-Constant temperature.	
	P.A./Music: Piped throughout the bldg.	-Used only when building is open to public.	
	Miscellaneous Equipment: Cash register, washer/dryer.	-Used only as required.	
Outdoor Pools Central Park Kensington McPherson Robert Burnaby	Pool heating: Water kept at constant temperature day/night.	-System operates only 8 months/year.	
	Water/filter pumps: used only as required - an automatic system.	-automatic system. -8 months/year.	
	Building lighting: turned on during operating hours. -Security lights on at night	-used only as required for use or security	
	Underwater lighting: Left on 24 hours a day during season of operation.		-See Underwater Lighting - Indoor Pools above
	Hot water: for showers, cleaning -Kept at constant temperature.	-Constant temperature.	
	Miscellaneous Equipment: cash register.	Used only as required.	
Rink : 24 hour Operation: Burnaby Lake Rink Kensington Rink	Building Lighting: used 24 hours a day.		
	Rink lighting: Used 24 hours a day.	Kensington has two sets of lights on rink - Both sets used only for hockey games.	
	Dressing room/office heating: Kept at constant temperature		
	Spectator heating: Small electric heaters facing stands	-Used only when attendance warrants use.	
	Refrigeration system: Operates 24 hours a day - Kept between 18-20o F. depending on condition of ice surface		

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PARK FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSER
Rinks-Continued	Hot water: For showers -Kept at constant temperature	-Constant temperature	
	Minor equipment: e.g., cash register, record player.	Used only as required.	
Field Houses: (Summer only-occasional winter use)	Building Lighting: as required during the day - single light on at night. *See section on security lighting listed below	-all lights shut off and building boarded up in off season. -during season only those lights needed for security or recreational use are on.	
Cariboo Richmond Ron McLean Deer Lake	Heat: Not used in summer-kept very low in winter - Deer Lake has an electric heater used occasionally in May and Sept.	-Used only to keep pipes from freezing up.	
	Hot water: For cleaning purposes -Constant temperature during season.	-Water temperature is kept low (Warm).	
	-Pilot only during off-season.		
Field Houses:(Open all year except during extreme winter freeze-up)	Lighting: as required during the day - single light on at night. *See section on security lighting.	-Used only as required for use and security.	
Central Burnaby Lake Riverway Confederation Kensington	Heat: These field houses are kept warmer than the seasonal ones but still kept quite low.	-Heat kept quite low	Thermograph analysis to determine heat loss
	Hot water: Kept at constant temperature (Hotter than seasonal field houses).	-Turned to pilot when freeze up forces closure of fieldhouse.	
	Sewage Pump: (At Riverway Only) - to pump waste water into sewage system-automatic system.	-Automatic - In use only as required.	

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Burnaby Parks and Recreation Department

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PARK FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSERVATION
Concessions:- Burnaby Lake Rink Deer Lake Kensington Rink Swangard Stadium	Heat/Light/Hot water as costed under respective buildings.		
	Minor Equipment; coffee, pop machines, hot dog machines, popcorn machine.. Deer Lake has deep fat fryers.	-used only during peak-use periods	
Concessions: Burnaby Mountain Golf Course	Hydro: Parks & Rec. pays 80% of the hydro bill but operation is up to the private operator - hydro bill includes security lighting listed below.		-Establish policy re hydro use in privately operated park buildings.
Clubhouses: 8 Months Operation Central Park P & P Kensington P & P	Lighting: As required during the day - single light on at night. *See security lighting section.	-All lights within clubhouse shut off during off-season. -During season only those lights required for use or security are on.	
	Heat: Usually not used in summer except May and September. -Kept minimal in winter to stop pipes from freezing.	-Minimal use.	
	Hot water for cleaning purposes. -Constant temperature during season. -Pilot only in off season.	-Seasonal use.	
	Minor equipment: e.g. cash register.	-Used only during season.	
Work Yards: Central Park Kensington P & P Burnaby Mountain	Lighting: As required during the day - Interior lights off at night.*See security lighting section.	-Used only as required.	
	Heat: Kept minimal to stop pipe freezing only. -No heat at Burnaby Mountain.	-Minimal use.	
	Hot water: For cleaning purposes kept constant throughout year. -No hot water at Burnaby Mountain.	-Constant temperature.	

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PARK FACILITY

SOURCE OF ENERGY CONSUMPTION

CONSERVATION TACTICS BEING USED

STRATEGIES FOR FURTHER ENERGY CONSERVA

Park Nursery:
Greenhouse Complex
Garage
Old Carpenter's Shop

Heat: Hot water system heated by gas -
Kept at constant temperature of 60°F
day and night.
-Heat in old carpenter's shop (oil heater)
is only used periodically when shop is
in use.

-Constant temperature

Light: Used as required during day - All
lights turned off at night.
*See section on security lighting.

-Used only as required during work hours.

Hot water: In greenhouse complex only -
For cleaning purposes.

-Constant temperature

Minor Equipment: e.g., soil-sterilizing
machine - electric.

-Used only as required.

Century Park Buildings:
James Cowan Centre
Mather House
Burnaby Art Gallery
Green House

Heat: Kept at constant temperature in all
four buildings.

-Constant temperature.

Lighting: Used when classes are being
held in James Cowan and Mather House -
limited security lighting.
Green House - Lights off at 8 except as
required by janitorial staff.
Art Gallery - Lights on 9 - 5 and also
7 - 9 on Wednesday evenings.
-Limited security lighting and as re-
quired by janitorial staff after dark.
*See section on Security Lighting for
outdoor lights.

-Used only as required by individual
classes, janitorial staff and for
security/serveillance.

Miscellaneous Equipment:
A. James Cowan Centre:
Theatre Lights -40 - 500 watt lamps.

-Controlled by stage manager-used with
discretion during final rehearsals.
-Used for performances.

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PARK FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSERVATION
Century Park Buildings-Continued	Miscellaneous Equipment-Continued James Cowan - Continued Coffee urns, pop machines etc. - Open 7 - 9 during class sessions	-Only open during class sessions, craft markets, etc. i.e., according to public attendance. -Run by Burnaby Concert Band as a means of raising funds.	
	B. Mather House: 6 pottery wheels 2 electric kilns 1 large gas kiln Exhaust Fans Hot plates - For batik classes	-Used according to class requirements and needs of the pottery guild. -Kilns fired only for complete loads.	
	C. Burnaby Arts Centre: Video equipment, projectors, etc.	-Used only for special presentations i.e., when slides or video is part of a show.	
	D. Green House: - Electric typewriters - Coffee Urns.	-Used as required by staff.	

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A. Soccer Fields Bonsor Confederation Edwards School Kensington Swingard Masburn Mt. Kingdon	6 poles, 30 lights 6 poles, 36 lights 5 poles, 36 lights 10 poles, 50 lights 4 poles, 140 lights 3 poles, 36 lights 4 poles, 20 lights	- all soccer floodlights are on a manual system - turned on only when being used. - soccer clubs turn lights on upon arrival - must be off by 22.00h.	
B. Tennis Courts Central (4) Central Valley (11)	4 poles, 8 lights 14 poles, 48 lights	- on a time clock system. Come on at dusk, off at 22.00h. - manual system - turned on by Park Patrol at dusk when weather permits tennis play.	- to convert to a manual system will be more energy efficient but requires man-power.
C. Ball Diamond Bonsor	4 poles, 4 lights	- manual - turned on when field is to be used.	
D. Driving Range Burnaby Mountain Golf Course	4 poles, 4 lights	- manual - turned on when being used.	
E. Bowling Greens Confederation Central Park	8 poles, 25 lights 14 lights in clusters	- manual - controlled by the respective Bowling Associations.	
F. Lacrosse Confederation	4 poles, 16 lights	- manual - turned on when being used.	

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by Parks and Recreation Department

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Security Lights:			
A. On Buildings			
Bby. Mountain Pro Shop	3 lights	- All security lights on park buildings are on a photocell system - come on at dusk, go off at dawn. i.e. They are only on when required for security/surveillance.	
Bonsor Recreation Centre	2 lights		
Central Pk. Bowling Club	1 light		
- Fieldhouse	9 lights		
- P. & P. Clubhouse	5 lights		
- Equipment garage	2 lights		
Charles Rummel Rec. Centre	8 lights		
C.G. Brown Pool	6 lights		
Confederation Library	6 lights		
Confederation House	13 lights		
Confed. Civil Defence	3 lights		
Confed. Caretaker's suite	2 lights		
Confederation Changerooms	2 lights		
Confed. Bowling Clubhouse	8 lights		
Deer Lake Equipment Shed	1 light		
Century Park			
- James Cowan	33 lights		
Kensington Pool	3 lights		
Kensington P&P Work Shed	2 lights in poles		
Kensington Rink	12 lights		
McPherson Pool	3 lights		
Nursery (various bldgs.)	9 lights		
Riverway Fieldhouse	7 lights		
Robert Burnaby Pool	3 lights		
Ron McLean Fieldhouse	5 lights		
Swangard Stadium	15 lights		
Wesburn Recreation Centre	8 lights		
Willingdon Rec. Centre	8 lights		
Security Lights:			
B. On Roadways, Paths & Parking Lots.			
Burnaby Mountain	4 lease lights	- all free-standing security lights are on a photo cell system.	
Bby. Mtn. Golf Course	3 lights		
- parking lot	1 light		
- putting green			

ENERGY CONSUMPTION / CONSERVATION

PARK FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSERVATION
On Roadway, Paths & Parking Lots Cont'd.			
Burnaby Lake Pavilion	26 lights	they are on only when light is required for security/surveillance	
- entrance road	3 lease lights		
P.L. & ramp			
Punser Parking Lot			
Central Park			
roads & paths by pond	8 lights		
Burnaby H. lights Reservoir	1 lease light		
Burnaby Lake Ring			
parking lot	5 poles, 9 lights	Note: Lease lights - billed a flat rate by B.C. Hydro, other lights metered, pay according to energy consumption.	
Confederation Library	1 light		
Confederation Cooling Green			
parking lot	1 lease light		
Burn Lake parking lot	2 lights		
Burnside Library	2 poles, 6 lights		
Centenary Park			
Art Gallery (p.l.)			
Pavilions	4 lights		
Doris Cowan (p.l.)	5 lights		
Mather House (roadway)	2 lights		
Kingsington Rink (p.l.)	8 lights		
Nursery (yard)	4 lights		
Riverway (p.l.)	1 light		
Richmond (field)	3 lights		
Ron McLean (access rd.)	3 lights		
Westburn (p.l.)	1 light		
Willingdon (Tennis court)	1 light		
Lights on Signs/Flower Beds			
Entrance Sign at			
Boundary/Kingsway	1 light	- on photo cell system	
Burnaby Lake Rink -			
flower beds	2 lights	- come on at dusk off at dawn.	

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ADMINISTRATION/TECH SERV
LIBRARY FACILITY

ENERGY CONSUMPTION/CONSERVATION

SOURCE OF ENERGY CONSUMPTION

CONSERVATION TACTICS BEING USED

STRATEGIES FOR FURTHER ENERGY
CONSERVATION

Lights
(include signs
& security outdoor lights)

Lights: Used in office/warehouse space during operating hours.
Security lights within building left on all night.

Lights in staff room, washrooms, offices, turned off when not in use.

Heat

Heating/Air Conditioning Unit kept at regular temperature.

Could be turned down after working hours.

Hot Water

Kept at constant temperature.

Small Equipment

Coffee pot, kettle, toaster oven, vacuum, refrigerator, typewriters, adding machines, photocopiers, micro-readers.

Used only as required (except refrigerator)

ATTACHMENT 'D'

RECEIVED IN
ENGINEERING DEPT.

FEB 19 1979

REC

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KINGSWAY BRANCH

ENERGY CONSUMPTION/CONSERVATION

LIBRARY FACILITY

SOURCE OF ENERGY CONSUMPTION

CONSERVATION TACTICS BEING USED

STRATEGIES FOR FURTHER ENERGY CONSERVATION

Lights
(include signs
& security outdoor lights)

Used only as required during operating hours.
Security lights in building left on all night.

Lights are shut off when not required for operating or security use.

Heat

Kept at 69 degrees F twelve hours a day as required.

Reduced to 60 degrees F at night.

Readable thermographic analysis would be useful. (B.C. Hydro is not for Edmonds area.)

Hot Water

Kept at constant temperature.

Constant temperature less energy consumptive than varying day/night temperature. (?)

Small Equipment

Recordak equipment, postage meter, calculators, cash register, microfilm readers, people counter, fans, kettle, stove, vacuum cleaner, hot plate, refrigerator, used only as required during operating hours.

Used only as required.

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MEMORANDUM
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CENTRAL PARK

ENERGY CONSUMPTION/CONSERVATION

LIBRARY FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSERVATION
Lights (include signs & security outdoor lights)	Used only as required during operating hours. Security lights within building left on all night -- emergency fire exit signs, some work room lights, 3 lights in stack area.		
Heat	Kept at comfortable temperature 24 hrs per day. (regulated mainly by Edgecombe properties)		
Hot Water	Controlled by Edgecombe Properties.		
Small Equipment	Recordak equipment, postage meter, calculators, photocopier, stereo equipment, people counter, kettle, stove, vacuum cleaner, refrigerator.	Used only as required during operating hours (except refrigerator).	

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MCGILL BRANCH

LIBRARY FACILITY

ENERGY CONSUMPTION/CONSERVATION

SOURCE OF ENERGY CONSUMPTION

CONSERVATION TACTICS BEING USED

STRATEGIES FOR FURTHER ENERGY CONSERVATION

Lights
(include signs
& security outdoor lights)

Used only as required during operating hours.
Security lights inside and outside building left on all night.

Lights are shut off when not required for security or patron use of library.

Heat

Kept at comfortable temperature daytime.
(One furnace)

Temperature in Children's Room cut to from 50 to 60 degrees at night.
Rest of library cut-off at 10:30 p.m.

Hot Water

Kept at constant temperature.

Constant temperature is less energy consumptive than varying the day/night temperature.

Small Equipment

Kettle, stove, fridge, vacuums, polishers, recordak equipment, used only as required.

Used only as required.

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CAMERON BRANCH LIBRARY FACILITY	ENERGY CONSUMPTION/CONSERVATION		STRATEGIES FOR FURTHER ENERGY CONSERVATION
	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	
Lights (include signs & security outdoor lights)	Lights used only when library occupied. Fire Exit sign Outdoor light Emergency lighting (battery)	Lights turned off when library closed. Controlled by school. Controlled by school. Controlled by school.	
Heat	Kept at about 70 degrees F.	Controlled by school.	
Hot Water	None		
Small Equipment	Recordak equipment, kettle.	Used only as required.	

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Crest

LIBRARY FACILITY

ENERGY CONSUMPTION/CONSERVATION

LIBRARY FACILITY	SOURCE OF ENERGY CONSUMPTION	CONSERVATION TACTICS BEING USED	STRATEGIES FOR FURTHER ENERGY CONSERVATION
Lights (include signs & security outdoor lights)	Lights used only when library occupied. Outside sign turned on Friday evenings until 2000 hours	Lights are shut off when not required Sign illuminated only on the evening the library is open.	
Heat	Thermostat is kept at approx. 70 during open hours.	Thermostat turned down to 65 when library is not occupied.	
Hot Water	No control.		
Small Equipment	Recordak machine Electric kettle	Used only for checking out books. Used when required	

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