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DEPARTMENT OF
GENERAL SERVICES

OFFICE OF THE DIRECTOR

CITY OF SACRAMENTO
CALIFORNIA

5730 24TH STREET
BUILDING FOUR
SACRAMENTO, CA
95822-3699

916-449-5548

DIVISIONS:

COMMUNICATIONS
FACILITY MANAGEMENT
FLEET MANAGEMENT
RISK MANAGEMENT
AND INSURANCE
SUPPORT SERVICES

January 11, 1988

City Council
Sacramento, California

Honorable Members in Session

SUBJECT: ANNUAL ENERGY REPORT

SUMMARY

Transmitted herewith is the FY 1986-87 Annual Energy Report. The report is for City Council information.

OVERVIEW

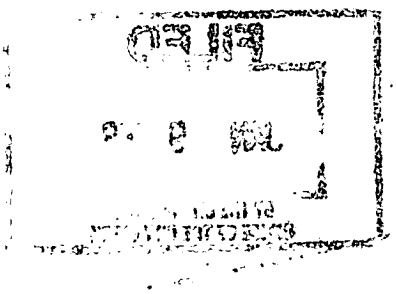
The attached report provides an overview of the City's annual energy consumption and the effectiveness of the City's energy conservation program to mitigate spiraling energy costs.

FY 1986-87 City-wide consumption reflects an increase of 2.5% above FY 1985-86. However, in spite of the City's systems expansion (i.e. new recreational facilities and programs, additional office facilities, increased computerization, office automation, additional street lights and traffic signals increased water production) FY 1986-87 consumption is 14.7% below that of FY 1981-82 the year we began consciously looking at energy conservation.

Aside from energy conservation, there are other important benefits being gained from the City's Energy Management Program. The benefits are: (1) improve lighting levels for the safety of public and employees, and (2) a significant reduction in maintenance costs resulting from the reduction of the number of lamps in the system and the extension of lamp life up to 50% in some areas.

FINANCIAL BENEFIT

Since FY 1981-82, the inception of the City's Energy Management Program, the investment of $1.8 million (i.e. energy program - $419K, parking lots - $447K, street light conversion - $527K, and Energy Coordinator's salary - $380K) has resulted in a $5.4 million mitigation of energy costs, **a return of $3 for each $1 invested.** Each dollar invested in energy conservation frees up funds to provide for the expanding operating budgets to meet the needs of the City.



CONCLUSION

Overall, I'm pleased with the effectiveness of the Energy Conservation Program and we will continue aggressively pursuing our mitigation efforts.

The City's Energy Systems Coordinator and SMUD's and PG&E's Conservation Departments are to be commended for their efforts.

RECOMMENDATION

This report is for City Council information only. No action is required.

Respectfully submitted,

Frank Mugartegui
Director of General Services

FOR COUNCIL INFORMATION ONLY:

Walter J. Slipe
City Manager

January 19, 1988
All Districts

cc: SMUD
PG&E
City Department Directors

ADM4.6

1986/1987

ENERGY REPORT

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City of Sacramento

ANNUAL ENERGY REPORT
1986-87

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EXECUTIVE SUMMARY

The City's Energy Management Program Continues to be a viable program that has resulted in a conservative cost savings of approximately $5.4 million since the City began its conscious effort to conserve energy in FY 1981-82.

The impact of spiraling energy rate increases and increased consumption resulting from expanding needs and services - new recreational facilities and programs, additional office facilities to accommodate an expanding work force, increased computerization, office automation, additional street lights and traffic signals, increased water production, etc. - over the past five years has been absorbed by mitigating energy consumption. When 1986-87 consumption is compared with the base year 1981-82, the City is consuming significantly less energy:

	1981-82	1986-87	Difference
• Electricity (kwh)	105,121,413	93,297,411	*<11,823,997>*
• Natural gas (therms)	735,604	503,638	*<231,966>*

The actual cost savings which have been achieved can be more clearly seen if one compares 1981-82 base year consumption levels and today's higher rates. For example, if the City continued to use energy at the 1986-87 energy rates, approximately $800,000 would have been added to the City's energy costs. 1986-87 electrical consumption increases of 2,250,955 kwh or 2.5%, are primarily attributable to new and expanded services, which were offset by energy management conservation measures as summarized below:

	KWH
• 63 new accounts	1,255,951
• Increased water production of 2.35 billion gallons or 6.8%	1,743,864
• Street lighting & traffic signal system expansion & modifications	1,028,631
Gross Consumption Increase	*4,028,446*

Mitigated Energy Usage:

•	Parking Garages	<519,151>	
•	Other reductions	<1,250,340>	<1,769,491>
	Net Consumption Increase		2,258,955

- 1986-87 natural gas consumption overall reflected a net reduction of 12,384 therms.
- Electricity and natural gas rates increased overall by 15.95%. Sacramento Municipal Utility District (SMUD) rates increased by 29.9% this reporting period, although Pacific Gas and Electricity (PG&E) rates decreased by .001%.
- Fleet operations fuel consumption increased 1.3% as a result of a 5.4% increase in miles driven; this increase is attributable to Sacramento's growth and the continuing demand for police, fire, and refuse vehicles. An additional 71 vehicles were added during this same reporting period.

Major Projects Completed During This Reporting Period

- Parking lots K, K1, and K2 have been converted to high pressure sodium (HPS) at an estimated cost of $295,000. The estimated savings from this effort is $69,346 with a payback to be realized within 4.25 years. Also a generator was installed to provide emergency lighting in case of power outage.
- The Hagginwood, Johnston, Northgate, Redwood ballfields were retrofitted with HPS and vandal resistant fixtures; this will reduce energy costs for these areas up to 22%.
- All exterior lighting at Glenn Hall, Mangan, Southside, and Cabrillo swimming pools were replaced in order to save energy, provide increased security and reduce maintenance costs.

Projects In Progress

- Complete the conversion of LOT P and LOT K to HPS. This is expected to increase the utility cost by approximately $933.00 per year, however, labor and maintenance costs will be reduced.

- Continue Parking LOT G's conversion form fluorescent to HPS. The conversion cost will be approximately $63,230.00, with an energy savings of $8,715 per year. The lighting level increase will benefit public safety.

- Review all exterior lighting at Fire Stations and correct as needed, for the safety and security of employees.

- Modify exterior lighting at Mckinley Park Garden/Arts Center to discourage vandalizism and provide greater public safety during evening events.

- Modify Mckinley Park Tiny Tot Center interior with a dropped ceiling and all new energy efficient lighting fixtures. This will provide reduced heating and lighting costs, and the desired environment for the preschool children.

RECOGNITION

- Again this year, the City has been selected to receive **SMUD's Executive Award.** This is the highest recognition award granted in their service area. This year's selection is based on the conservation efforts of the lighting conversion in the Parking Lots E & R.

INTRODUCTION

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I. INTRODUCTION

The goal of the City's energy program is to:

- Mitigate spiraling energy costs through the implementation of energy conservation measures and practices.
- Meet the energy needs of the City
- Free funds for other public services.

Three consistent factors appear throughout the following presentation of this year's energy consumption and conservation activities. These factors include the application of common sense, available technology, and vigilance in energy issues and problems. By seeking out new opportunities to conserve energy and providing education for City employee's on good energy conservation habits.

Due to continually increasing energy rates, a stronger commitment to prudent energy usage is necessary. In the last year, SMUD electric rates have increased 29.9%; this, added to the FY 1985-86 increases of 28% bring the **two year increase total to 57.9%.** On the other hand , Pacific Gas & Electric (PG&E) natural gas rates have decreased .08% over the same two year period.

In that light it becomes everyone's responsibility;" **Conserve Energy For Your Tomorrow".**

II. BACKGROUND/DISCUSSION OF ENERGY USES
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II. BACKGROUND/ DISCUSSION OF ENERGY USAGE

A. Climatic Factors

Local climatic conditions have a definite effect on energy consumption. Dry and hot summer months increase consumption of electricity to operate pumps and air conditioning units, while colder days require increased consumption of natural gas for space heating. During this reporting period Northern California experienced very dry spring months which necessitated the increase in water production for irrigation , during the hot dry summer period. FY 86-87 climatic factors were as follows:

- Rainfall decreased to a 5 year low of 10.46 inches, and was 44.2% less than last year.
- Heating degree days, based on 65 degrees (an indicator measuring the need for winter space heating) decreased 1.2%.
- Cooling degree days, based on 65 degrees (an indicator measuring the need for summer air conditioning) decreased 27.7%.

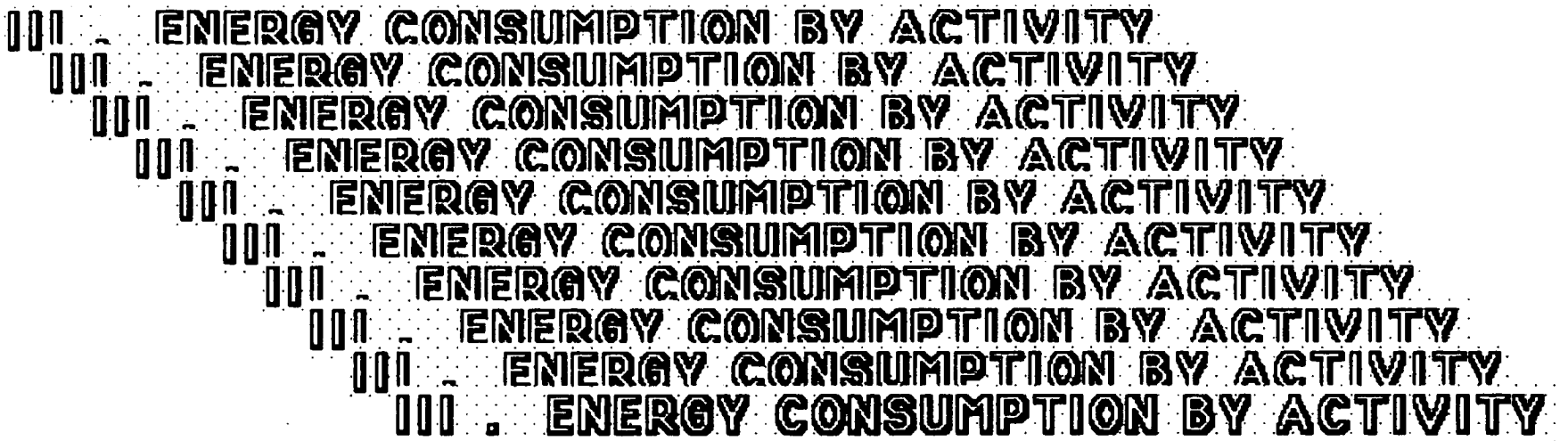
B. Facility Design Factors

- Many of the City's facilities are older structures and inefficient users of energy. That being the case, the first objective of the energy program is to improve the energy efficiency of existing facilities through any practical means available. The second objective is to design for any remodeled, expanded or new facility in a manner which enhances its energy efficiency.
- Improving the energy efficiency of existing structures requires determination and creativity. The starting point is a reasonable building temperature policy. The City's policy is to set thermostats no higher than 68 degrees in the winter and no lower than 76 degrees in the summer.
- Whenever a remodeled, expanded, or new facility is designed, energy efficient equipment is incorporated whenever practical, this includes lights, timers, HVAC systems.

C. **Energy Conservation Audit Measures**

- In the case of many existing buildings,the next step is to request SMUD and PG&E energy audits. This initial assessment is followed by the implementation of suggested corrective action with available funding. City facilities have been audited and modified to implement audit suggestions. In the process, improvements have been identified which could be made in energy efficiency beyond required audit items, utilizing new energy technology based on the payback and an effective preventive maintenance program. Funding is requested annually for energy conservation projects that will continue our consumption mitigation efforts. Finally, preventive maintenance has been successfully applied to numerous problem areas including heating, ventilation, and air conditioning systems, which reduces energy consumption when these systems are being properly maintained.

- Throughout City activities, the City's Energy Coordinator continues to provide ongoing leadership and coordination of the City's many-facetted energy program.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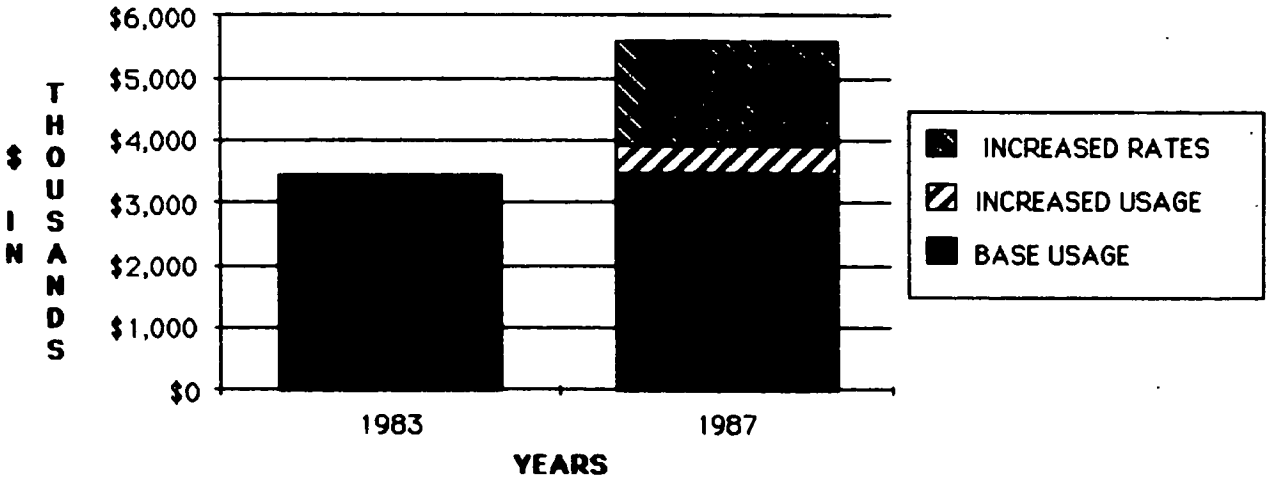
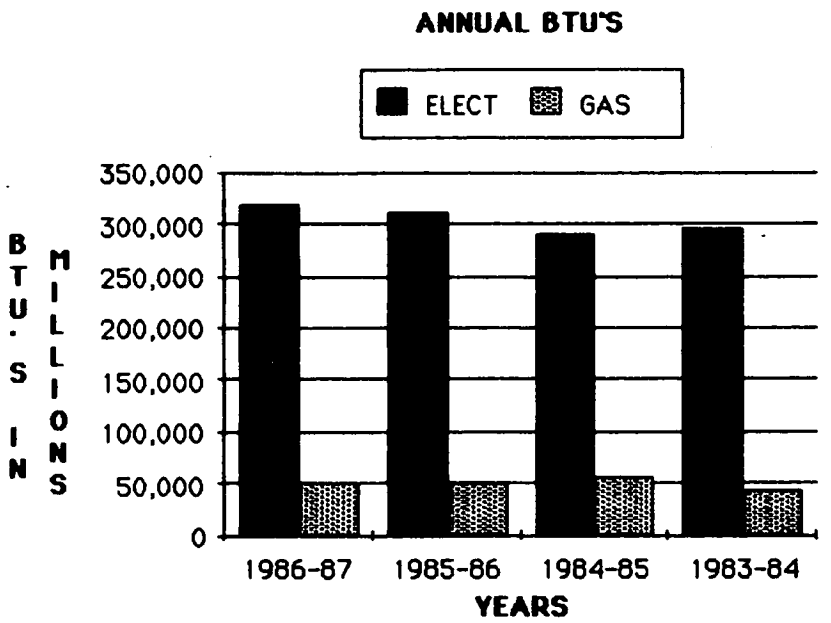
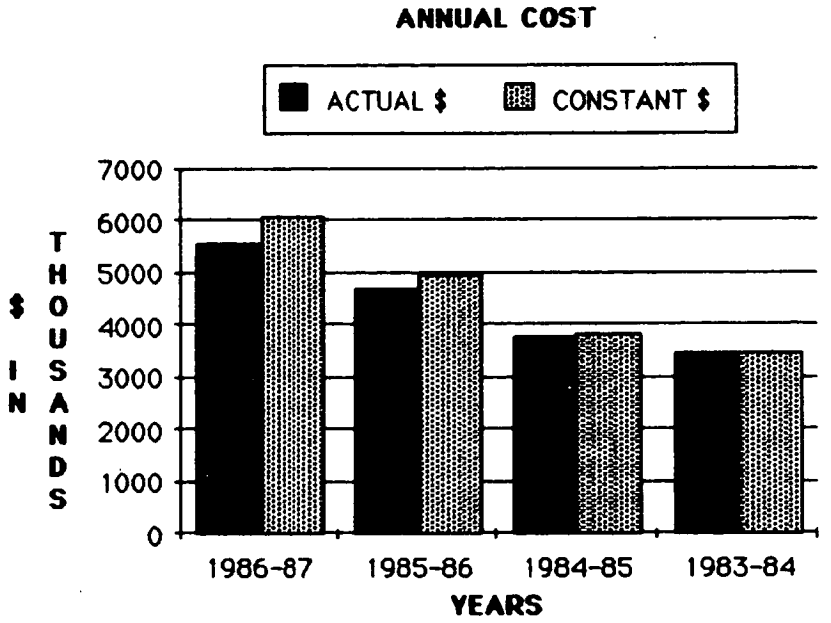
A.. SUMMARY OF OPERATIONS *

ENERGY MITIGATION OVERVIEW
COMPARISON OF CURRENT YEAR
TO BASE YEAR UTILITY EXPENSES



A. SUMMARY OF OPERATIONS





A. CONSUMPTION MEASUREMENTS

Period	Total BTU'S Billions	% Change
FY 1986-87	368,694,583,392	1.79%
FY 1985-86	362,225,428,932	3.74%
FY 1984-85	349,160,133,116	2.92%
FY 1983-84	339,258,550,156	NA

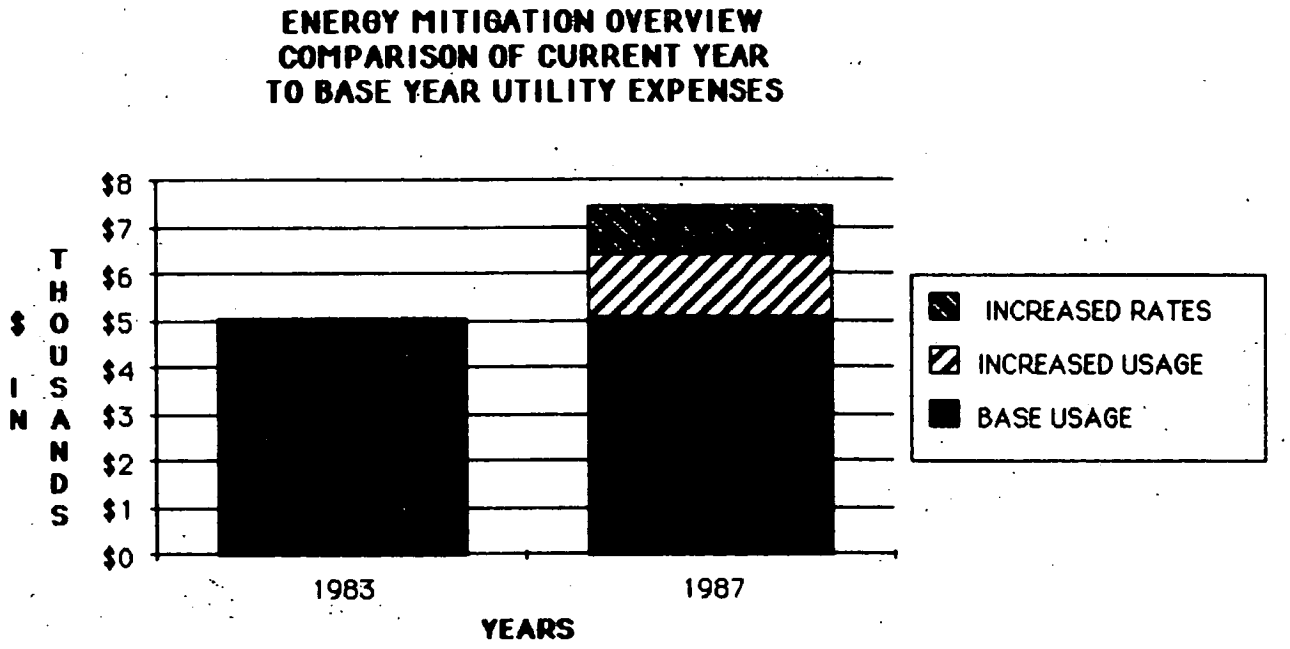
FY 1986-87 verses FY1985-86:

Electrical usage up	2.48%
Natural gas usage down	-2.40%
Total energy cost up	18.97%

HIGHLIGHTS

Overall energy consumption increased 1.79% for this reporting year, and the total cost of energy increased by $898,878 or 18.97% over last reporting period. The electrical consumption increase of 2.48% is primarily attributable to the increase in water production. The hot dry summer months and the 2.5% estimated population growth, necesitated an increase in the water production. Additionally the City had sixty three (63) new electrical accounts established during this period. The decrease of 2.40% in natural gas consumption is attributable to ongoing conservation measures ie: automatic setback thermostats, energy effecient replacement units etc. .

B. ANIMAL CONTROL *



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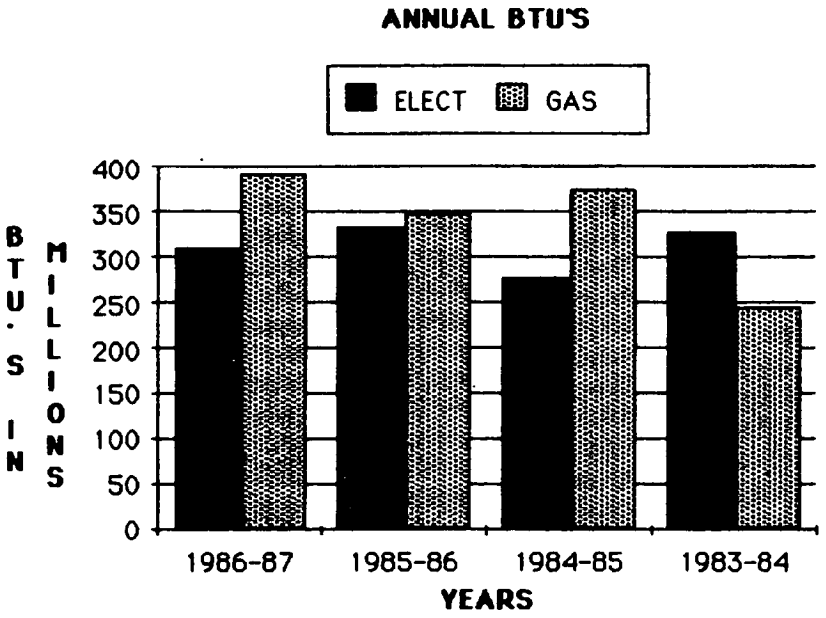
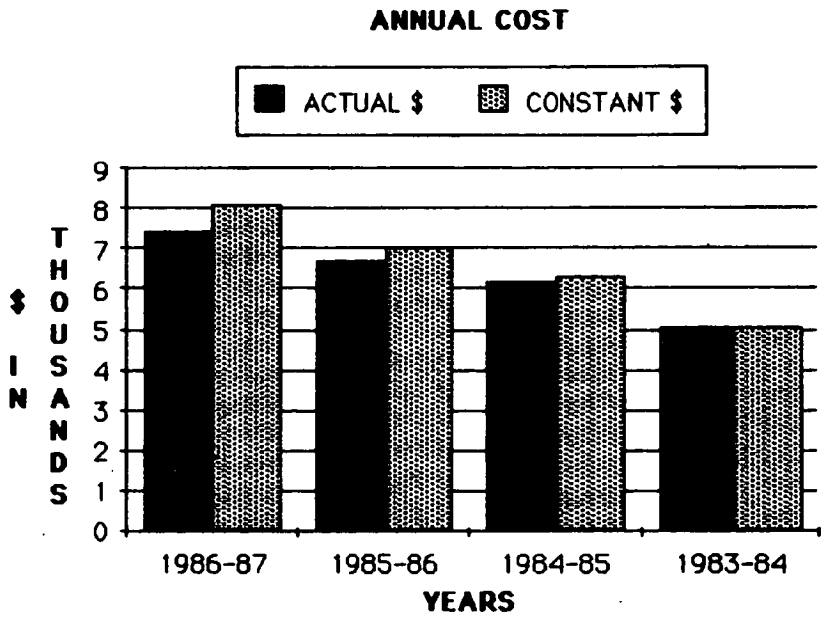




B. CONSUMPTION MEASUREMENTS

Period	Total BTU'S Billions	% Change
FY 1986-87	702,460,524	2.91%
FY 1985-86	682,591,752	4.43%
FY 1984-85	653,642,060	13.88%
FY 1983-84	573,976,908	-7.74%

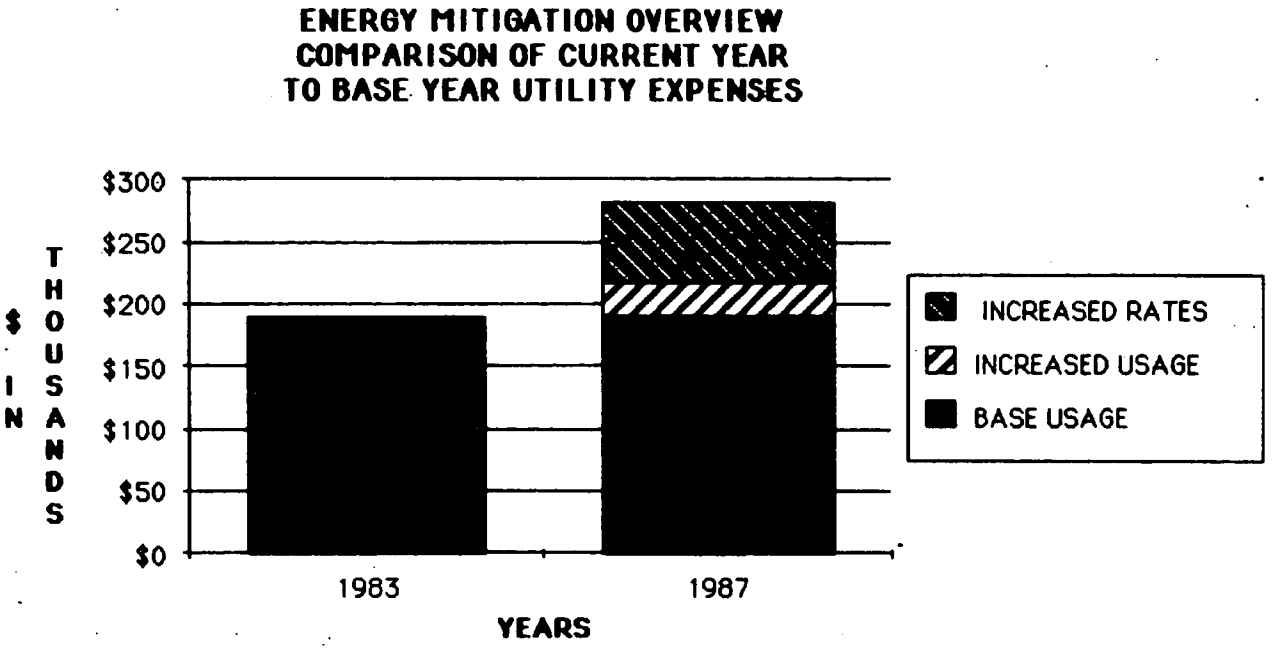
FY 1986-87 verses FY1985-86:

Electrical usage down	-7.37%
Natural gas usage up	12.77%
Total energy cost up	10.87%

HIGHLIGHTS

Energy consumption overall increased by 2.91%. This increase is mainly attributed to the 12.77% increase in natural gas. The electrical consumption decreased by 7.37%. The increased consumption in natural gas is a result of more stringent sanitary conditions, which has caused an increase in the use of hot water.

C. COMMUNITY CENTER *



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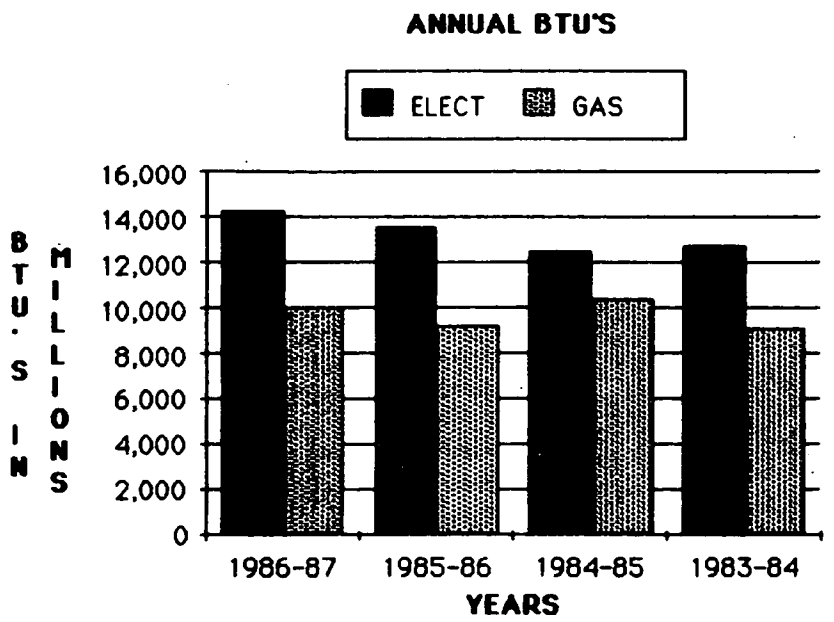
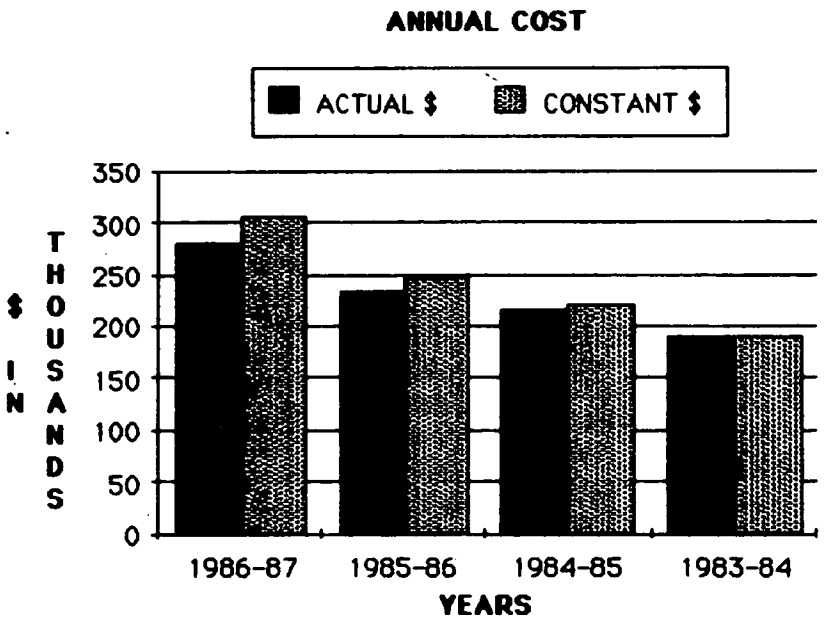




C. CONSUMPTION MEASUREMENTS

Period	Total BTU'S Billions	% Change
FY 1986-87	24,372,590,172	6.94%
FY 1985-86	22,790,893,008	-0.64%
FY 1984-85	22,937,743,980	4.62%
FY 1983-84	21,925,129,188	-2.12%

FY 1986-87 verses FY1985-86:

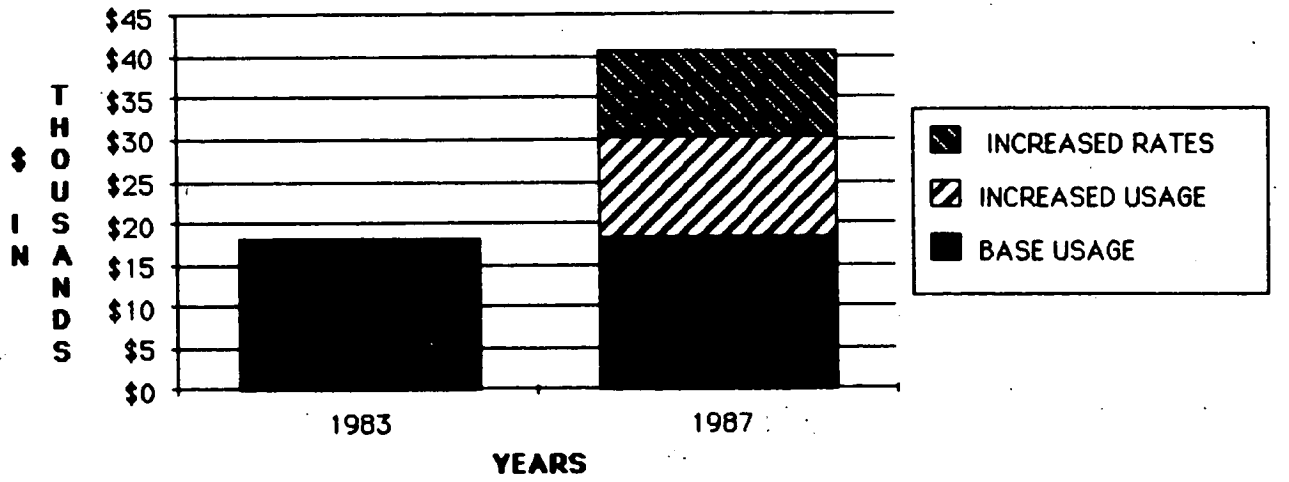
Electrical usage up	5.82%
Natural gas usage up	8.59%
Total energy cost up	19.83%

HIGHLIGHTS

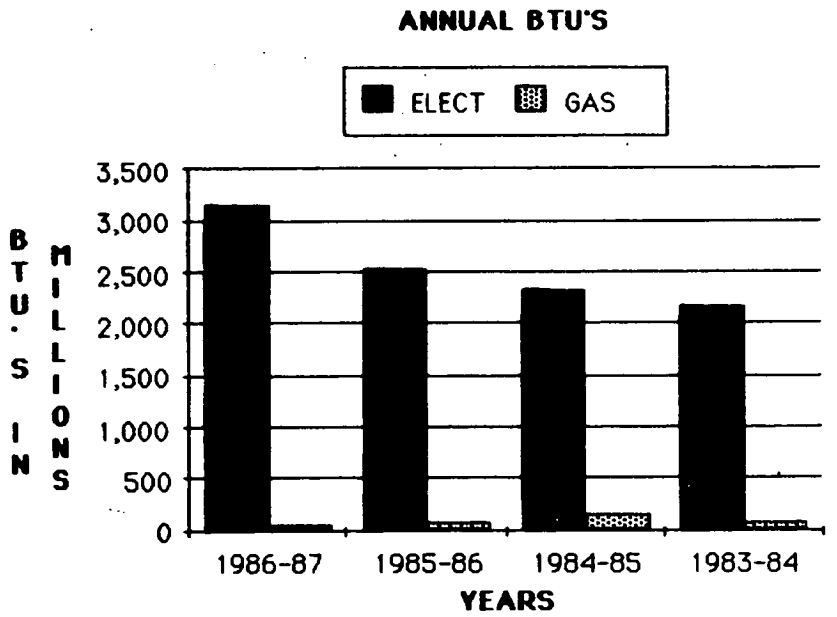
Total energy consumption increased 6.94% over last year. This increase was due to a 9.9 % increase in scheduled events and a 26.8% increase in catering events.

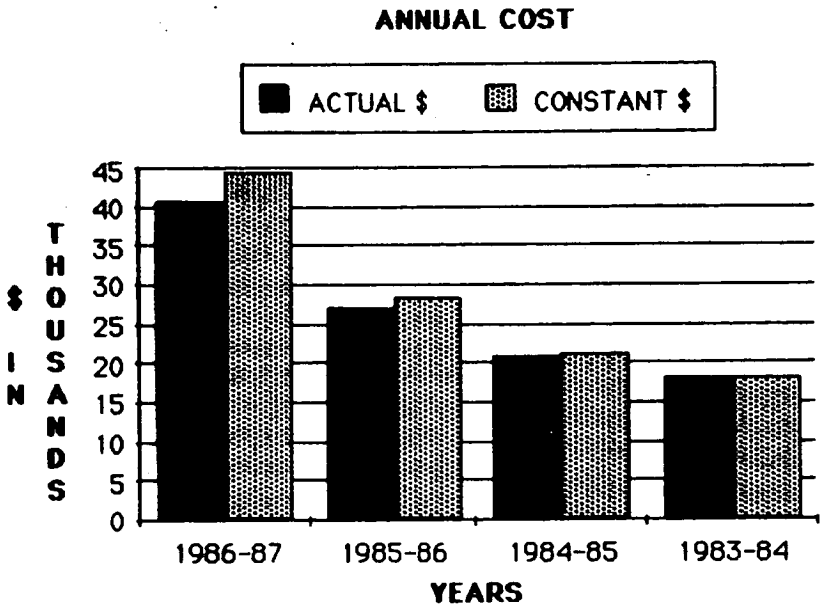
D. DATA MANAGEMENT *

ENERGY MITIGATION OVERVIEW
COMPARISON OF CURRENT YEAR
TO BASE YEAR UTILITY EXPENSES



D. DATA MANAGEMENT





D. CONSUMPTION MEASUREMENTS

Period	Total BTU'S Billions	% Change
FY 1986-87	3,229,183,084	23.06%
FY 1985-86	2,624,126,920	4.98%
FY 1984-85	2,499,691,536	9.73%
FY 1983-84	2,278,078,664	11.41%

FY 1986-87 verses FY1985-86:

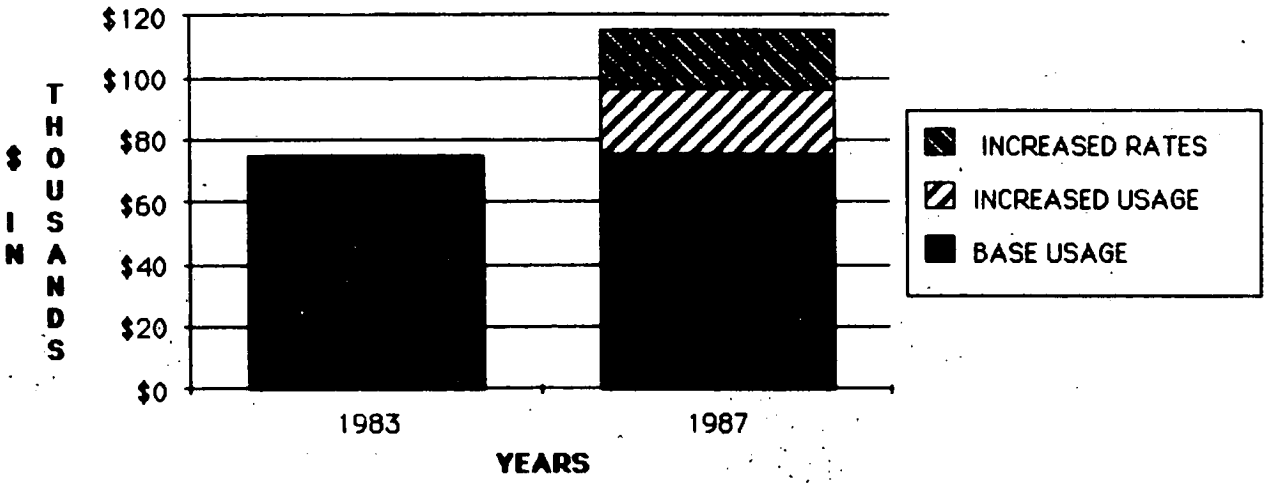
Electrical usage up	24.48%
Natural gas usage down	-19.71%
Total energy cost up	50.19%

HIGHLIGHTS

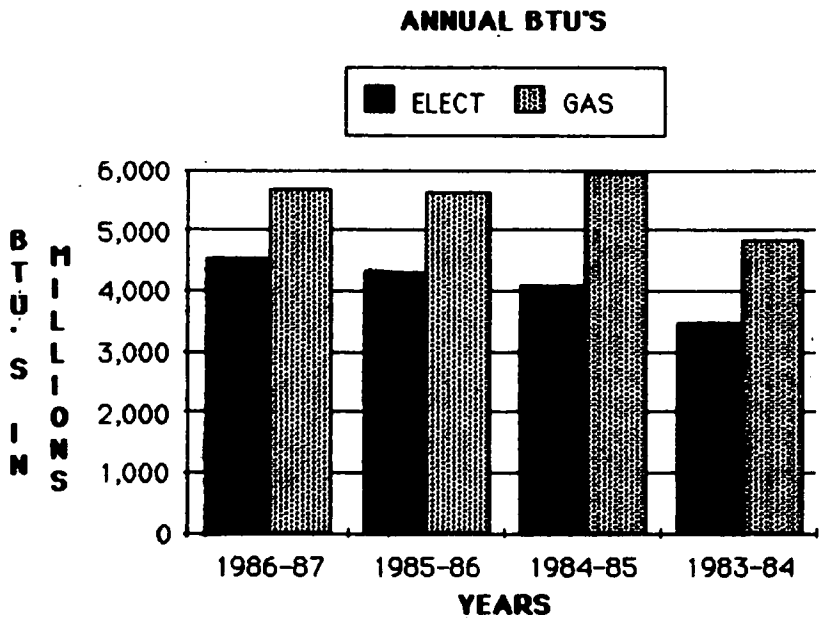
Electrical consumption increased 24.48% due to the addition of the IBM main frame computer and supporting peripheral equipment. The natural gas decrease of 19.71% is mainly due to the reduction in use of space heating.

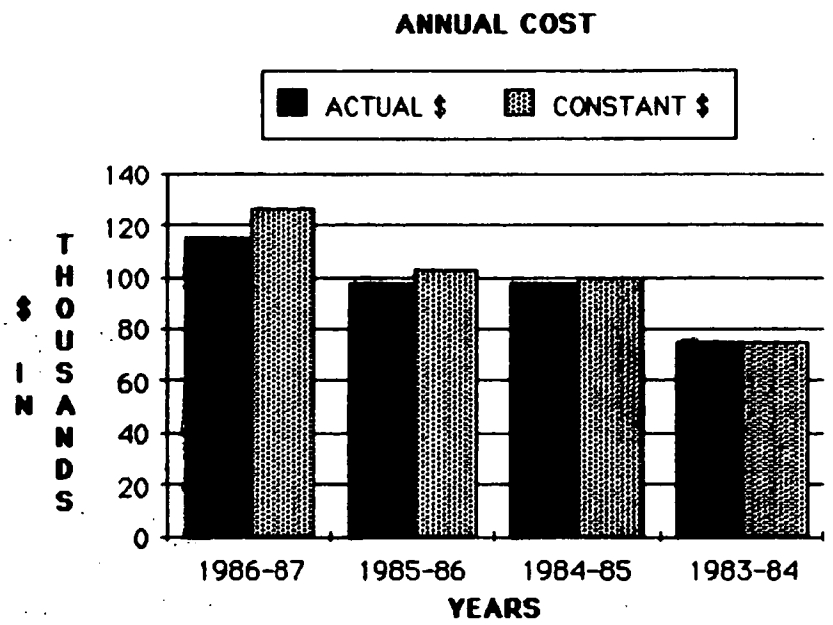
E. FIRE DEPARTMENT

ENERGY MITIGATION OVERVIEW
COMPARISON OF CURRENT YEAR
TO BASE YEAR UTILITY EXPENSES



E. FIRE DEPARTMENT





E. CONSUMPTION MEASUREMENTS

Period	Total BTU'S Billions	% Change
FY 1986-87	10,248,818,600	2.49%
FY 1985-86	10,000,134,432	-0.65%
FY 1984-85	10,065,676,236	20.40%
FY 1983-84	8,360,497,552	-18.28%

FY 1986-87 verses FY1985-86:

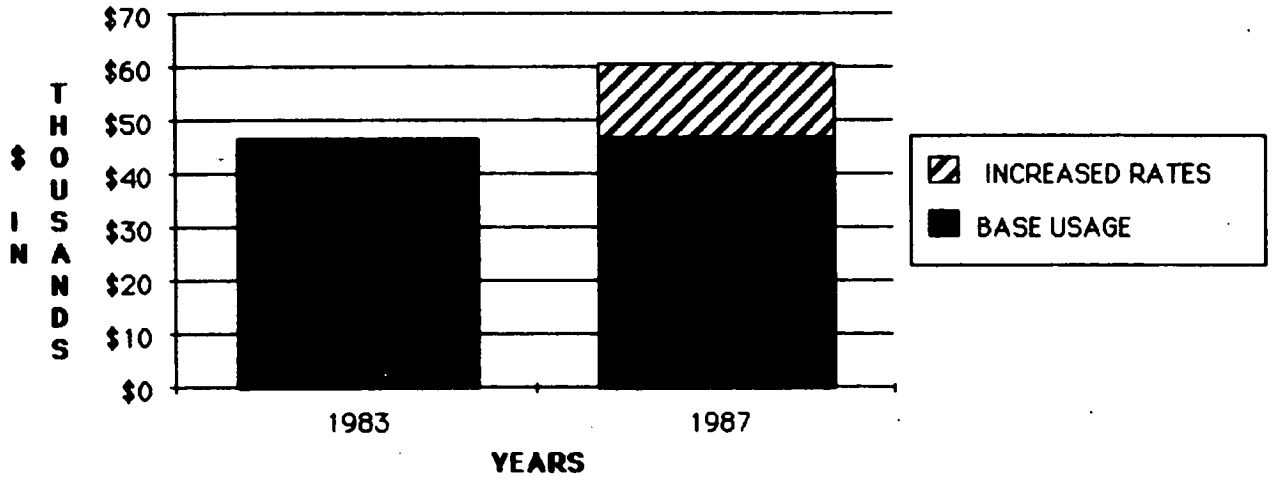
Electrical usage up	4.29%
Natural gas usage up	1.10%
Total energy cost up	17.93%

HIGHLIGHTS

Both electrical and natural gas consumption increased this reporting period due in part to the new fire station no. 11 (3,050 KWH). Additionally, there was a 51,664 KWH increase in use throughout the Department.

F. LIBRARIES *

ENERGY MITIGATION OVERVIEW
COMPARISON OF CURRENT YEAR
TO BASE YEAR UTILITY EXPENSES



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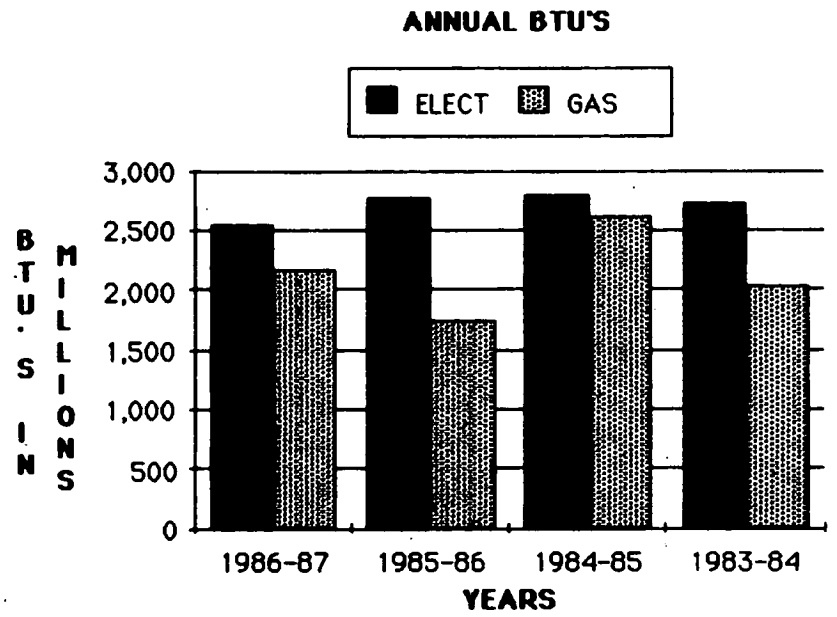
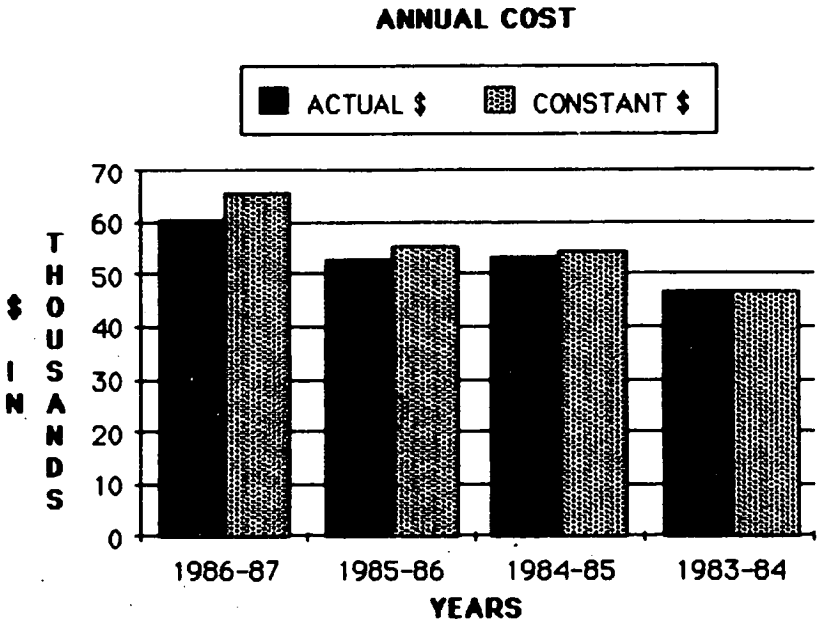




F. CONSUMPTION MEASUREMENTS

Period	Total BTU'S Billions	% Change
FY 1986-87	4,735,912,196	4.76%
FY 1985-86	4,520,782,728	-16.62%
FY 1984-85	5,422,140,312	14.00%
FY 1983-84	4,756,237,304	-17.57%

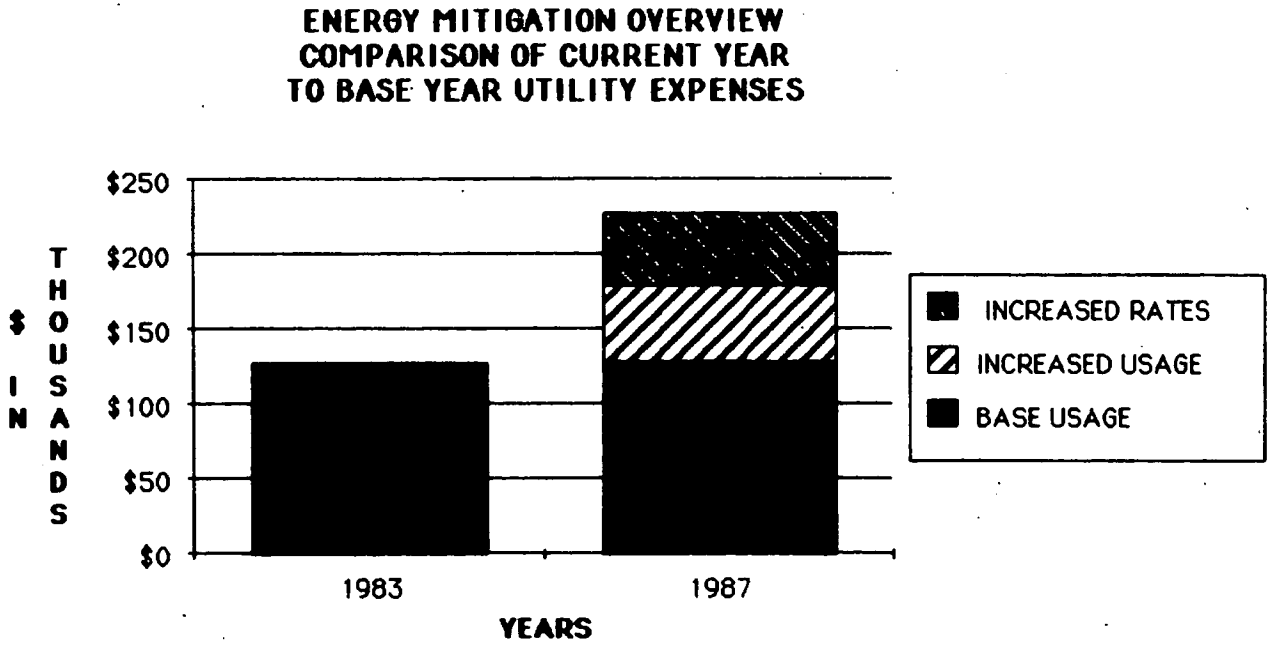
FY 1986-87 verses FY1985-86:

Electrical usage down	-8.02%
Natural gas usage up	25.09%
Total energy cost up	14.25%

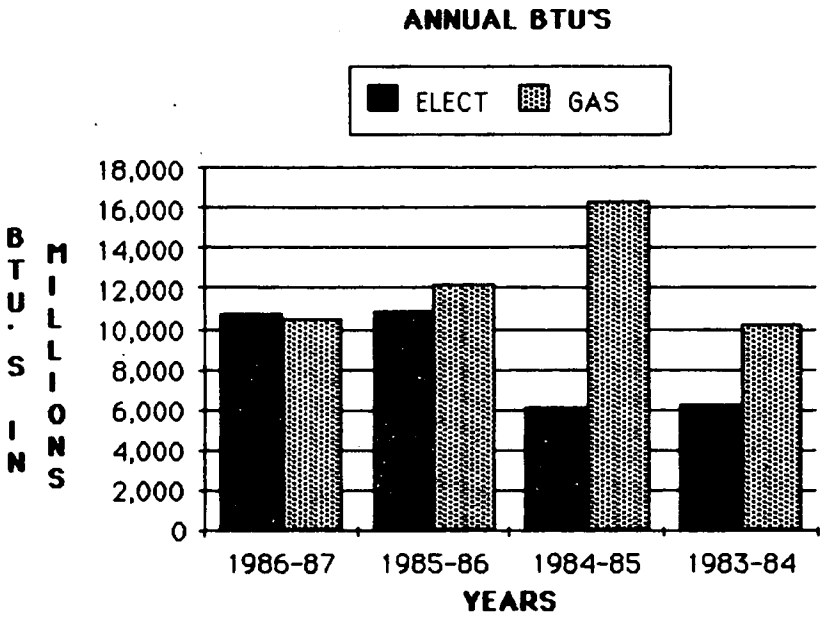
HIGHLIGHTS

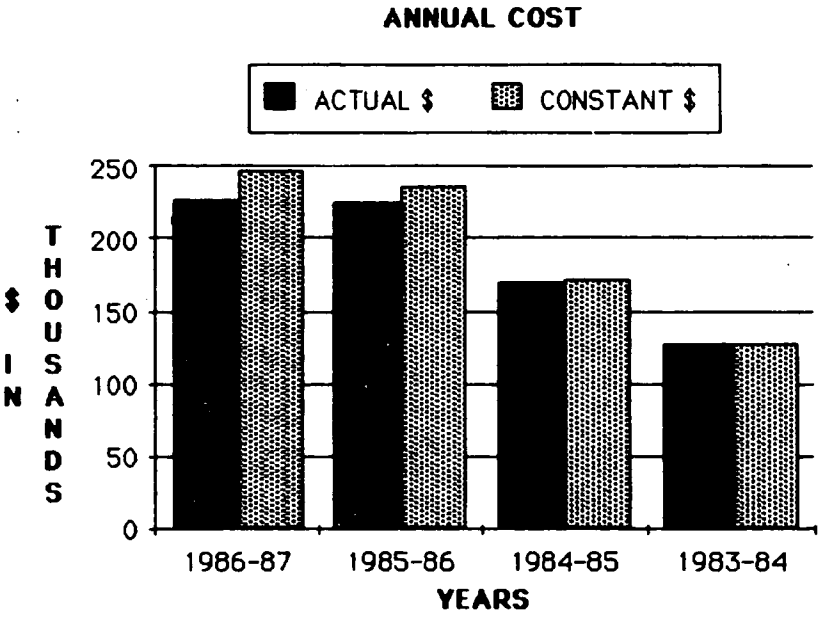
Total energy consumption increased 4.76% during this reporting period. Electrical consumption decreased 8.02%, but this savings was offset by the increase of 25.09% in the use of natural gas. This increase can be attributed to the increase in operation of both the Central library and the Martin Luther King facility.

G. OFFICE BUILDING/ 24th STREET CORPORATION YARD *



G. OFFICE BUILDINGS/24th STREET CORPORATION YARD





6. CONSUMPTION MEASUREMENTS

Period	Total BTU'S Billions	% Change
FY 1986-87	21,357,443,740	-7.53%
FY 1985-86	23,097,126,548	2.56%
FY 1984-85	22,521,040,896	36.26%
FY 1983-84	16,527,690,336	-27.42%

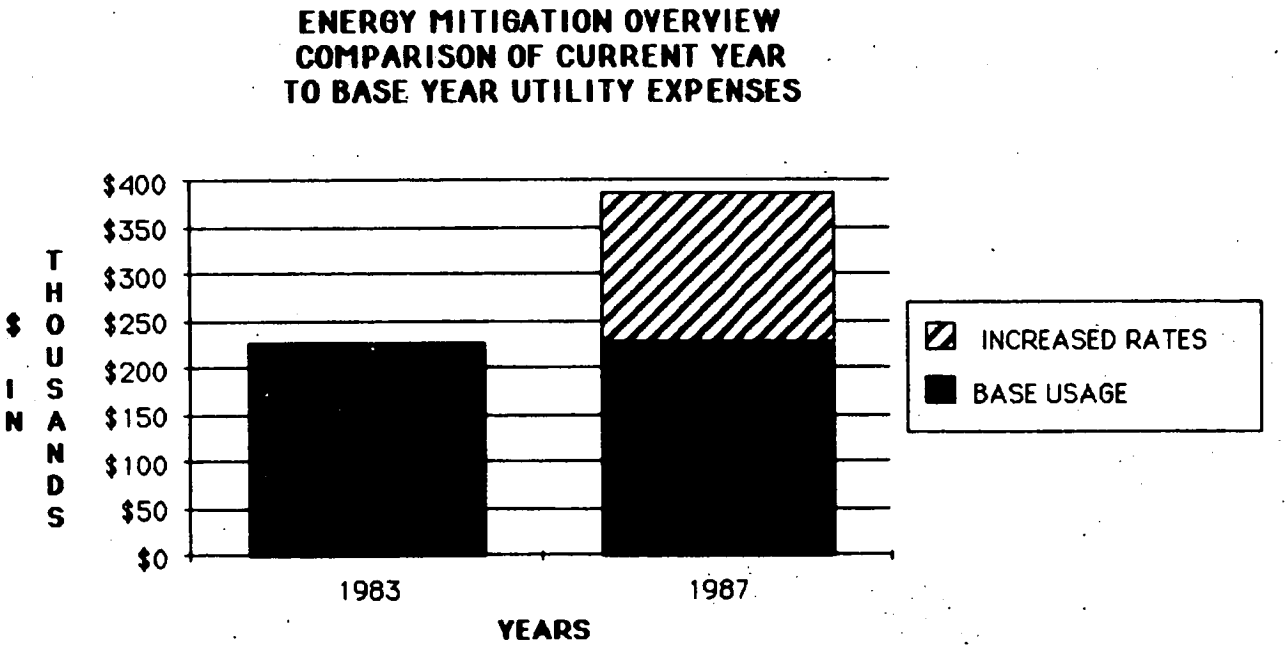
FY 1986-87 verses FY1985-86:

Electrical usage down	-1.06%
Natural gas usage down	-13.31%
Total energy cost up	0.75%

HIGHLIGHTS

Overall consumption decreased by 7.35% during the reporting period. Electrical consumption decreased by 1.06%, even with the addition of a new account (water chiller at City Hall). Consumption at 13th & I Office Building decreased because of energy conservation efforts. Natural gas decreased for the third consecutive year. This is due mainly to the milder temperatures during the normal heating months, and the realization of the conservation measures.

H. PARKING LOTS *



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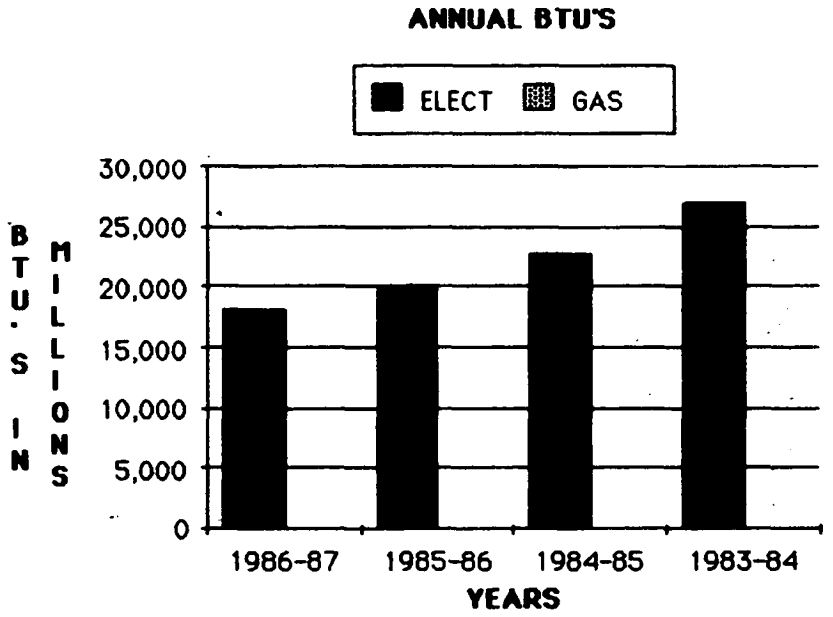
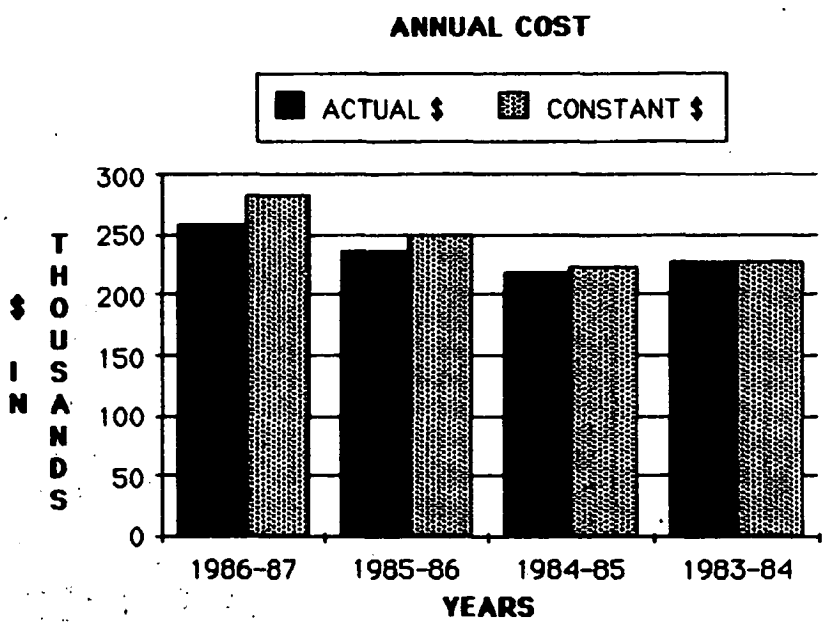




H. CONSUMPTION MEASUREMENTS

Period	Total BTU'S Billions	% Change
FY 1986-87	18,206,559,148	-8.74%
FY 1985-86	19,950,592,432	-12.58%
FY 1984-85	22,822,102,056	-15.96%
FY 1983-84	27,157,349,568	-10.83%

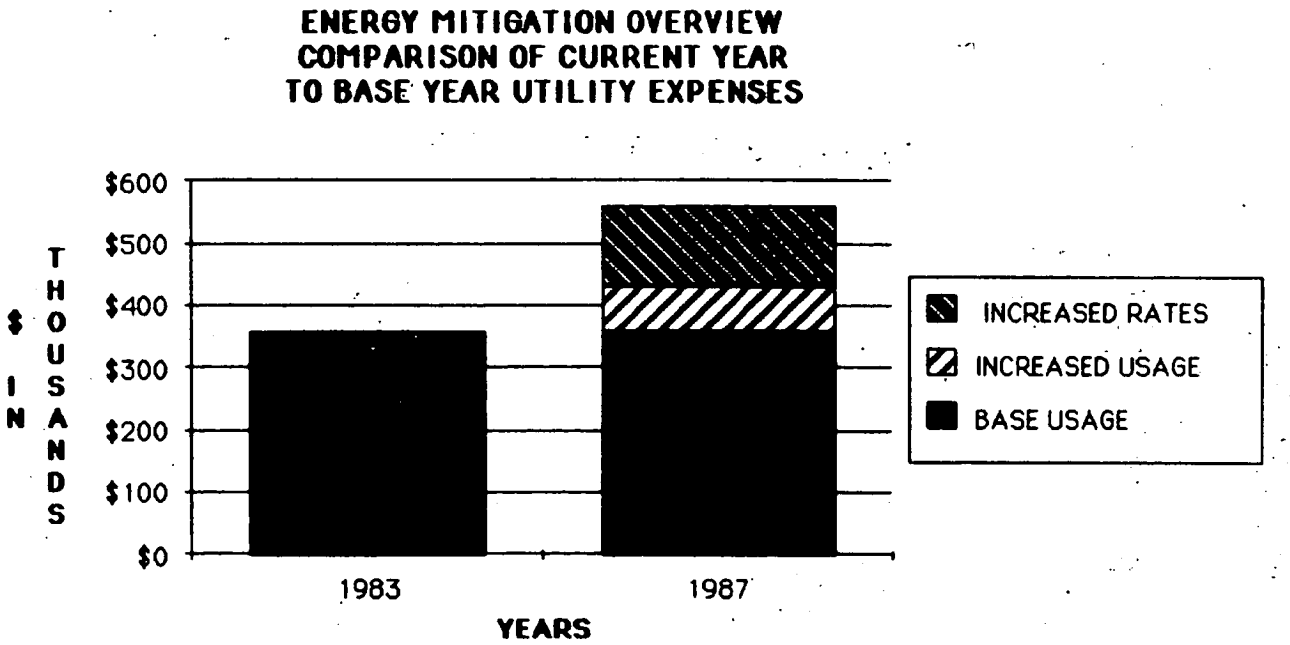
FY 1986-87 verses FY1985-86:

Electrical usage down	-8.81%
Natural gas usage up	282.61%
Total energy cost up	9.29%

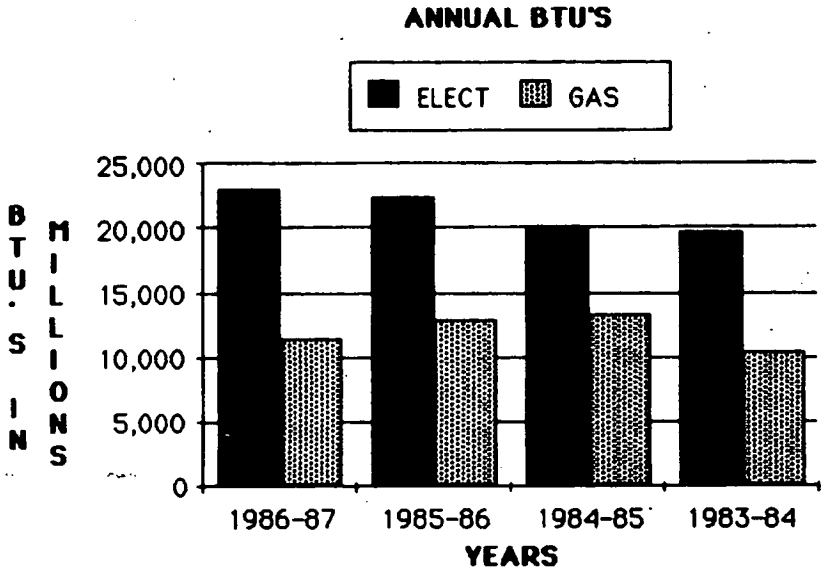
HIGHLIGHTS

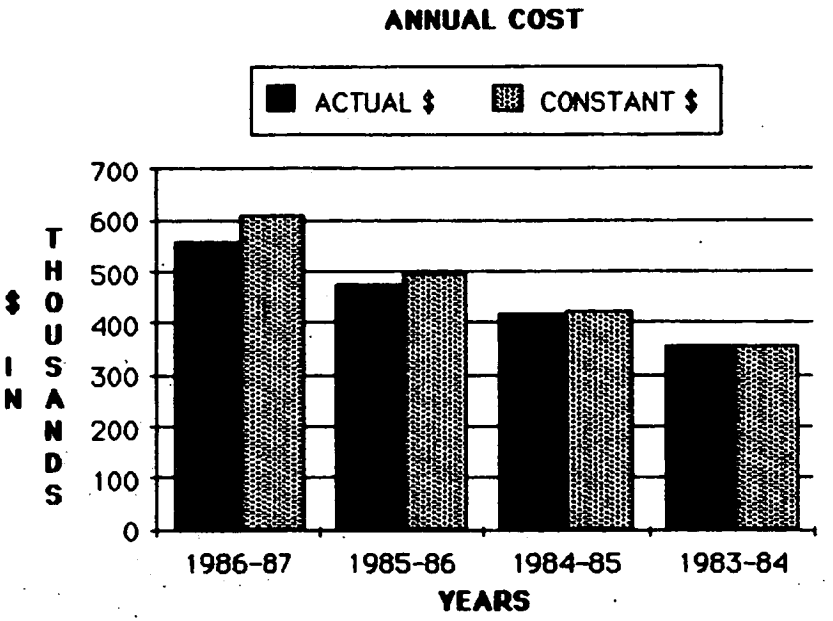
Energy consumption decreased 8.81% during this reporting period. This is the fifth consecutive year consumption has decreased and is due to the conversion of existing lamps to energy efficient high pressure sodium HPS lamps, and automatic switching systems. SMUD performed an energy audit at parking lots A, B, E, H, and R and determined that the effect of the energy conservation projects completed over the past five years will save the City an average of $114,000 per year in electrical costs. (Refer to Section V. para. A.)

I. PARKS AND COMMUNITY SERVICES



I. PARKS AND COMMUNITY SERVICES





I. CONSUMPTION MEASUREMENTS

Period	Total BTU'S Billions	% Change
FY 1986-87	34,538,216,664	-1.93%
FY 1985-86	35,218,362,644	5.56%
FY 1984-85	33,362,912,060	10.74%
FY 1983-84	30,128,344,380	-11.61%

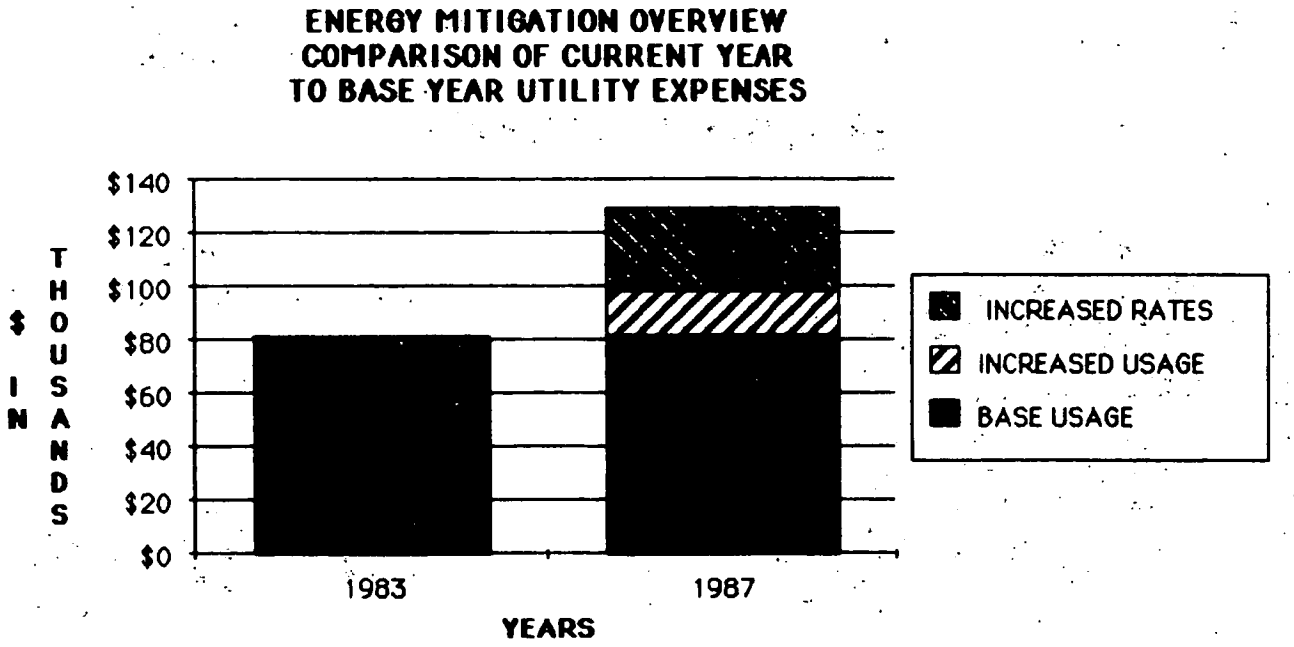
FY 1986-87 verses FY1985-86:

Electrical usage up	3.01%
Natural gas usage down	-10.52%
Total energy cost up	17.80%

HIGHLIGHTS

Energy consumption overall decreased 1.93%. Natural gas usage decreased by 10.52% , although this was offset by an increase in electricity usage of 3.01%. The electrical increase can be attributed to the increased use of lighted outdoor sporting facilities, ie: tennis courts, Renfree field, softball parks such as Johnston and Redwood Park. Haggin Oaks, and Bing Maloney golf courses electrical consumption was up due to the increased requirement for irrigation due to the hot and dry season. The Jr. Science Center and Museum was also added during this period, which accounted for 95,340 kwh used.

J. POLICE DEPARTMENT *



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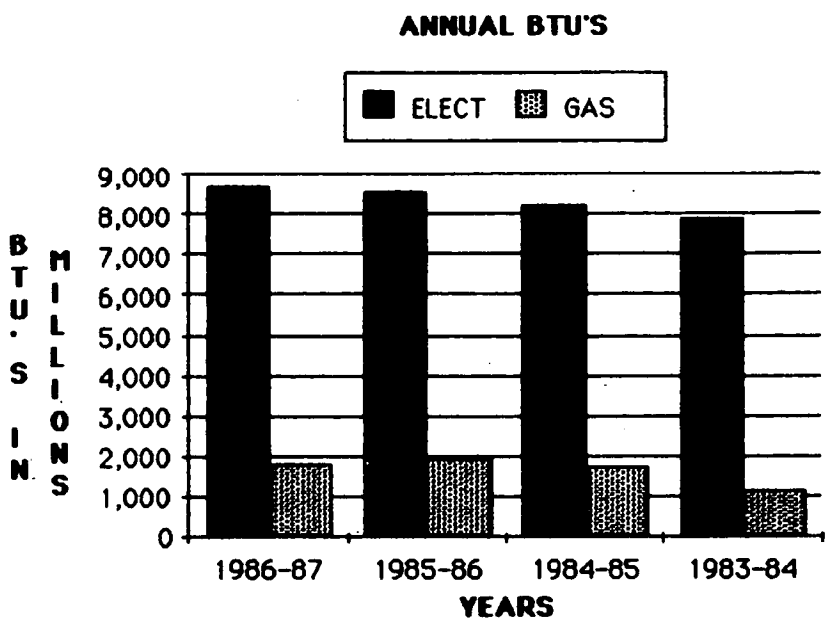
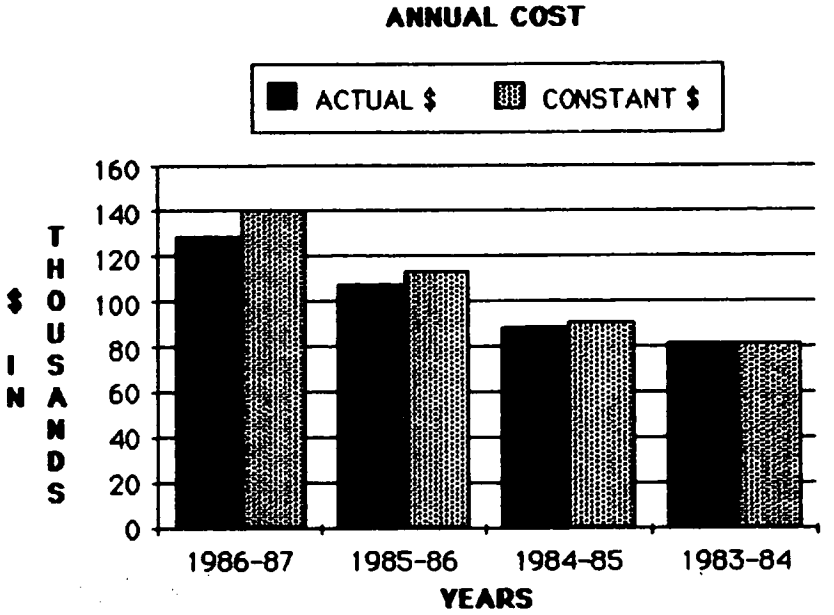




J. CONSUMPTION MEASUREMENTS

Period	Total BTU'S Billions	% Change
FY 1986-87	10,510,745,636	-0.34%
FY 1985-86	10,546,371,980	5.56%
FY 1984-85	9,990,610,180	9.85%
FY 1983-84	9,094,538,848	6.05%

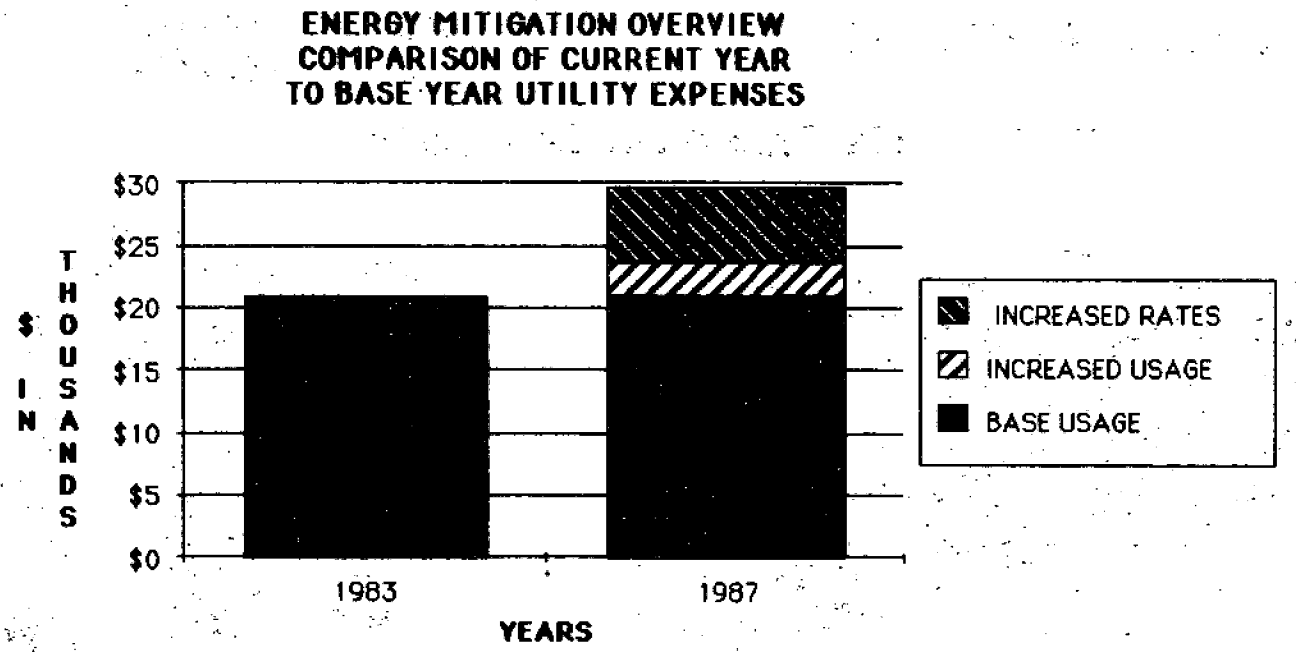
FY 1986-87 verses FY1985-86:

Electrical usage up	1.47%
Natural gas usage down	-8.22%
Total energy cost up	19.46%

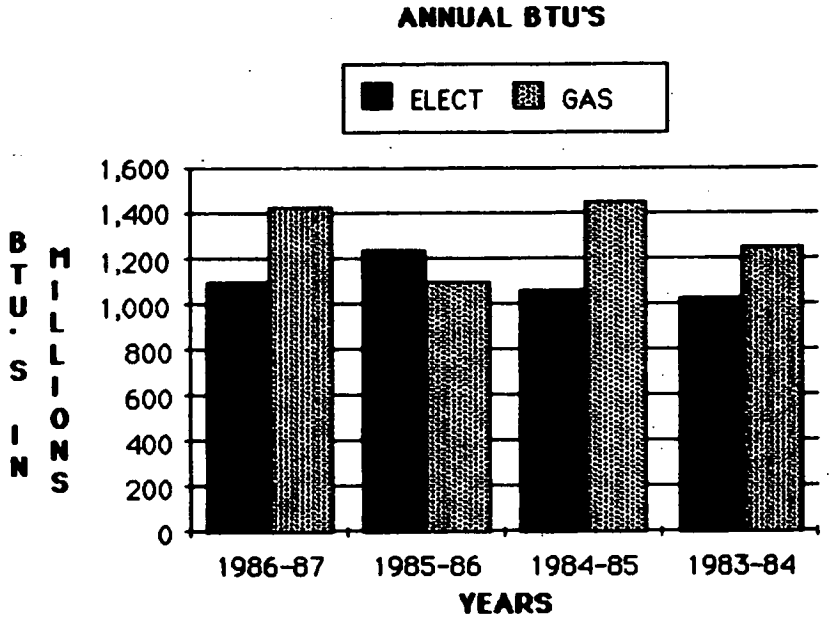
HIGHLIGHTS

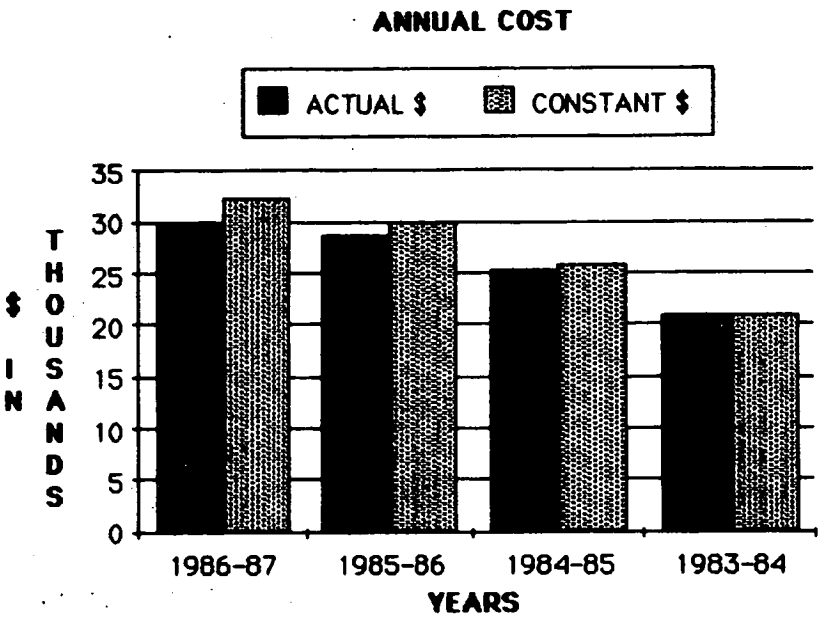
Overall consumption decreased .34% over last reporting period; this is due mainly to the work completed on the heating system at 625 H Street. The increase in electrical consumption is due mainly to the increase in computer hardware and peripheral equipment.

K. SOLID WASTE *



K. SOLID WASTE





K. CONSUMPTION MEASUREMENTS

Period	Total BTU'S Billions	% Change
FY 1986-87	2,529,811,200	8.21%
FY 1985-86	2,337,921,340	-7.36%
FY 1984-85	2,523,672,520	10.16%
FY 1983-84	2,291,014,220	-14.11%

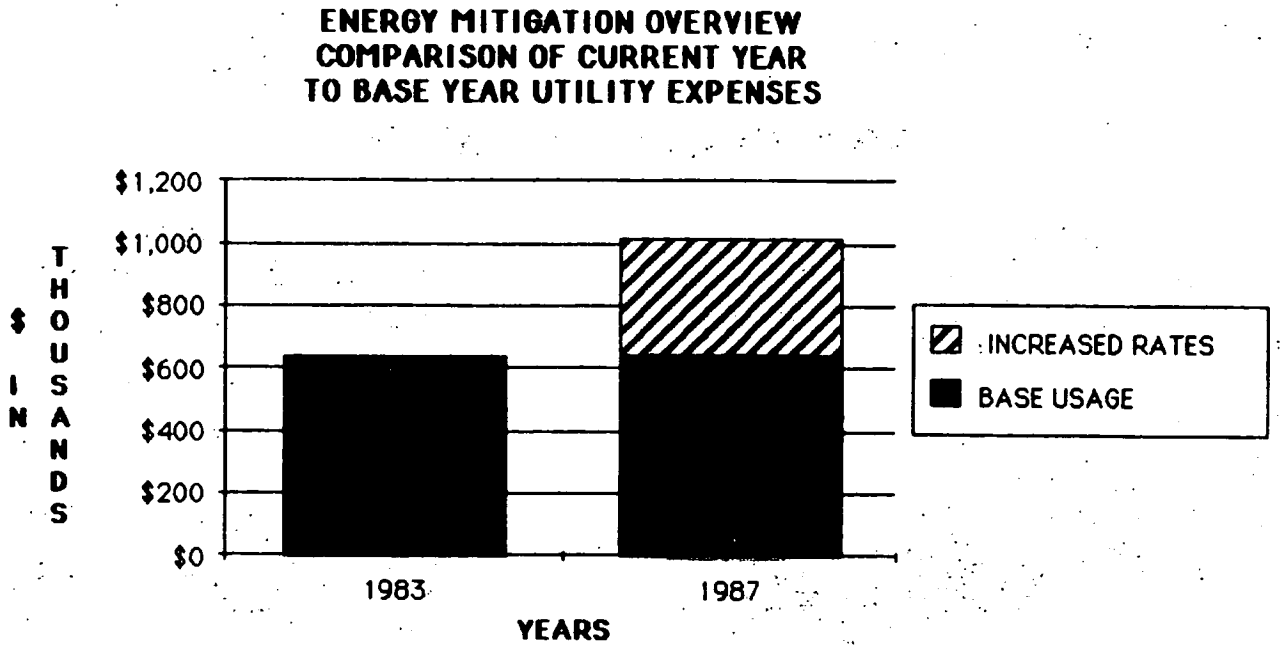
FY 1986-87 verses FY1985-86:

Electrical usage down	-11.18%
Natural gas usage up	30.07%
Total energy cost up	3.80%

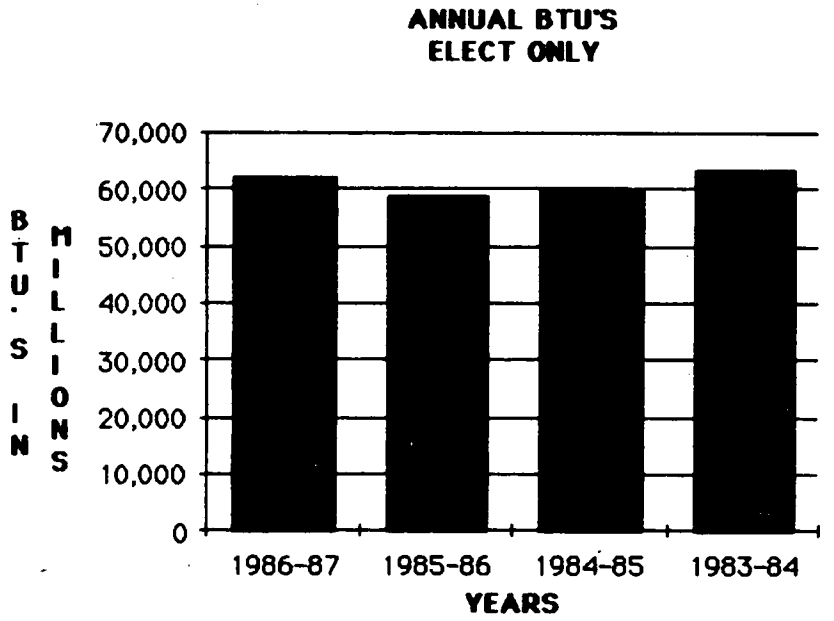
HIGHLIGHTS

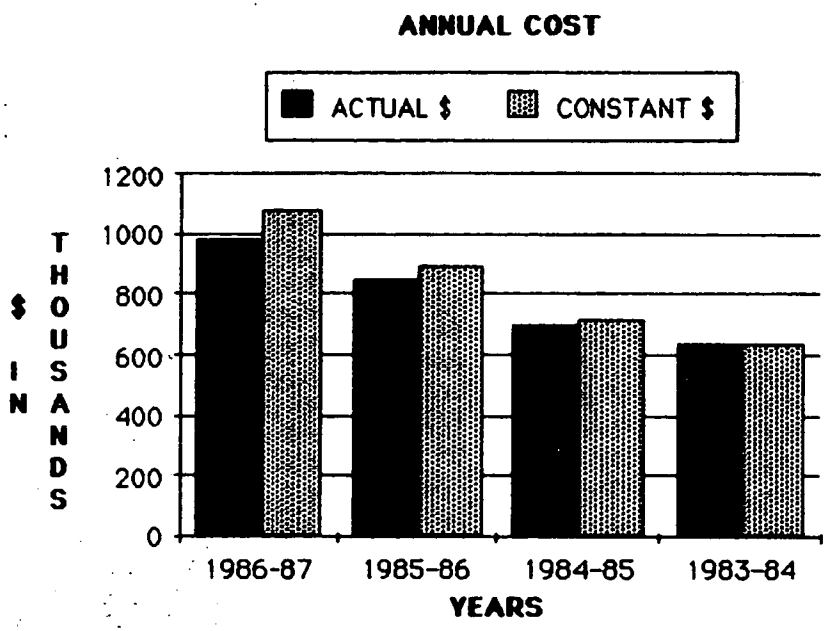
Electrical consumption decreased significantly due to the shut-down of the vegetatal shredder, which was placed in an inactive state. The large increase in natural gas consumption was due mainly to the increase in truck washings prior to maintenance, for the health and safety of employees working on the equipment.

L. STREET LIGHTING *



L. STREET LIGHTING





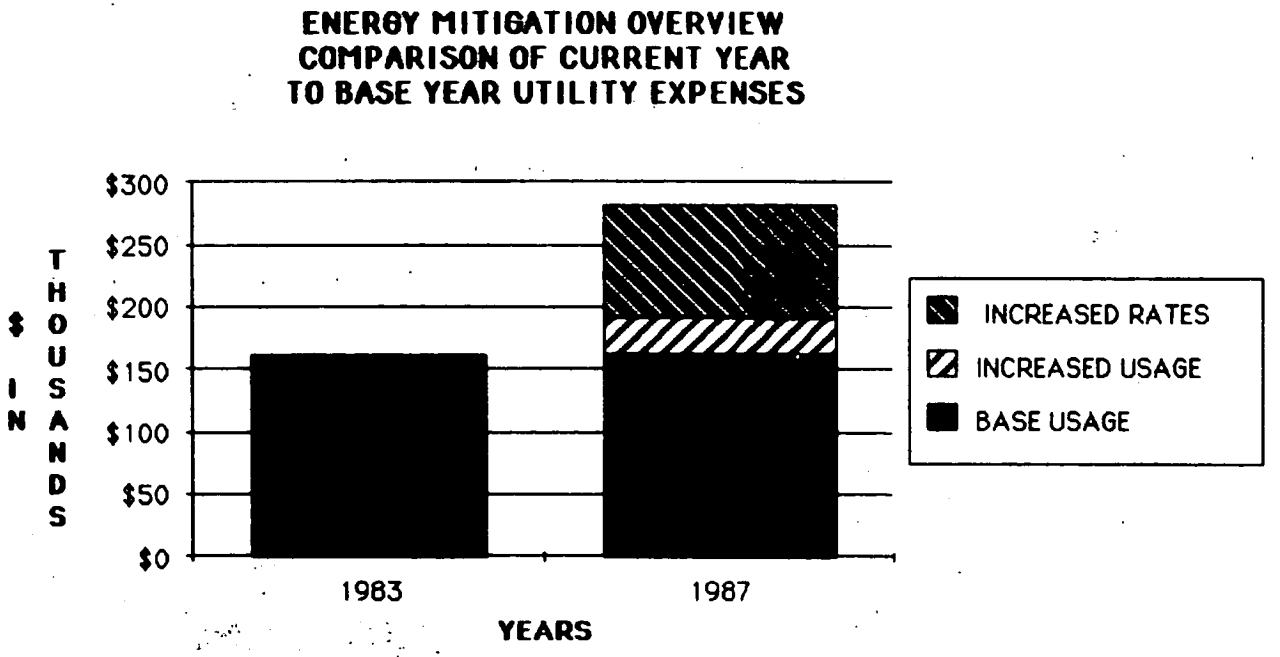
L. CONSUMPTION MEASUREMENTS

Period	Total BTU'S Billions	% Change	# of Street Lights	FY 1986-87 verses FY1985-86:	
FY 1986-87	62,198,091,816	5.15%	22,234	Electrical usage up	5.15%
FY 1985-86	59,154,311,444	-1.64%	22,008	Natural gas usage	NA
FY 1984-85	60,141,065,256	-5.69%	21,356	Total energy cost up	15.54%
FY 1983-84	63,768,655,888	5.37%	20,706		

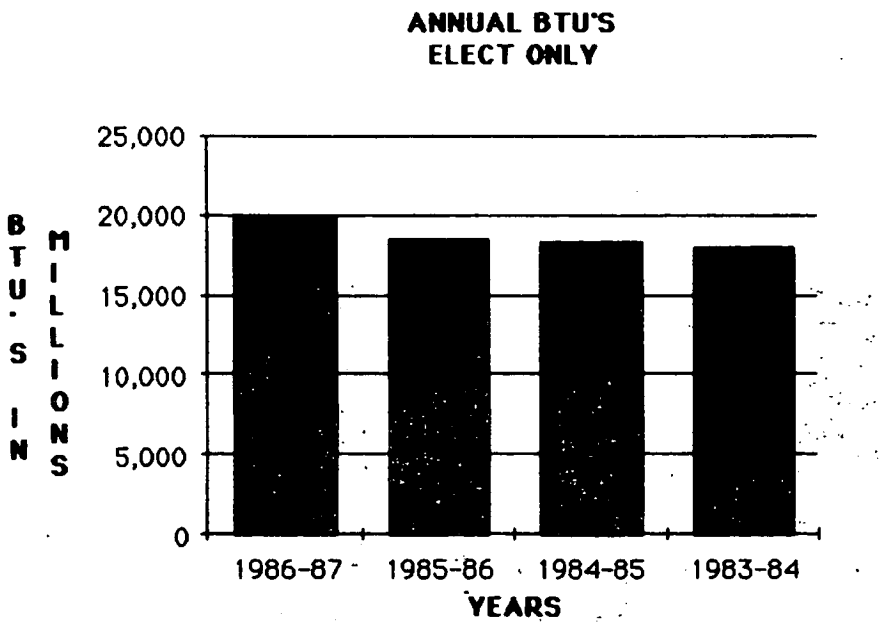
HIGHLIGHTS

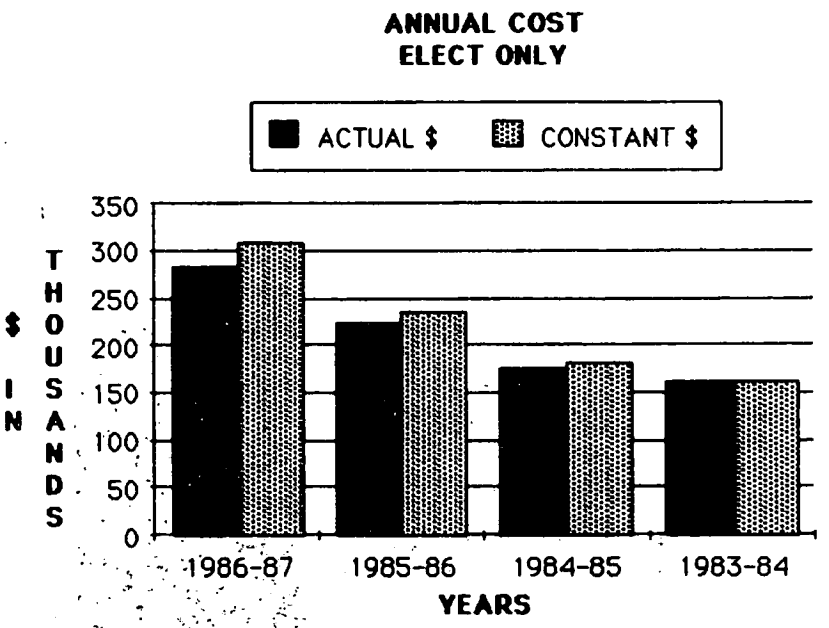
There were an additional 226 street lights added to the system during this reporting period. The program of converting street lights from mercury vapor to high pressure sodium luminaries is continuing, with approximately 15,500 remaining to be changed.

M. TRAFFIC SIGNALS *



M. TRAFFIC SIGNALS





M. CONSUMPTION MEASUREMENTS

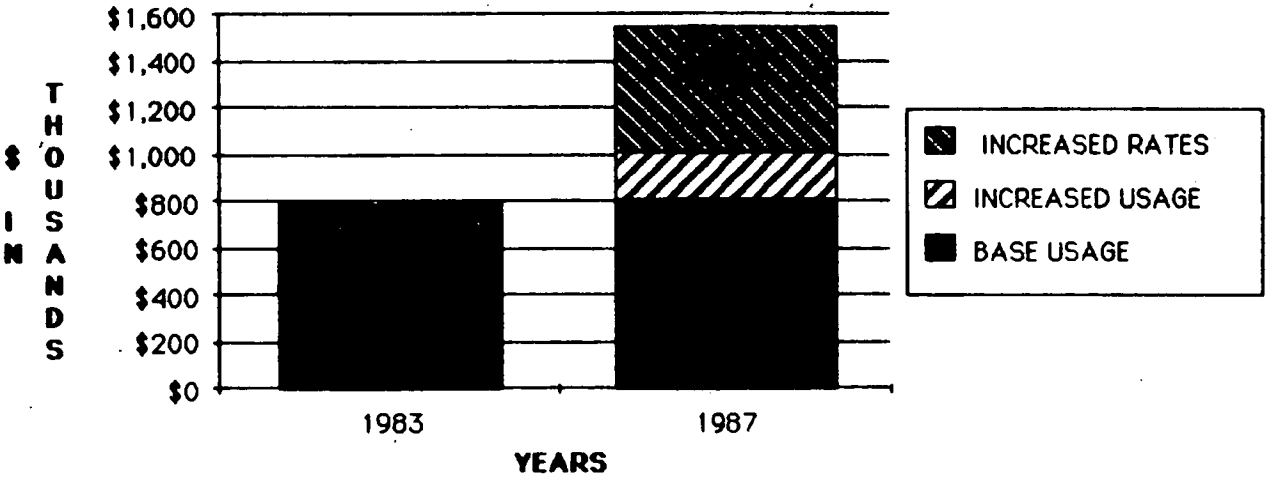
Period	Total BTU'S Billions	% Change	# of Signalized Intersections	FY 1986-87 verses FY1985-86:	
FY 1986-87	20,086,989,920	8.27%	514	Electrical usage up	8.27%
FY 1985-86	18,553,514,288	0.89%	500	Natural gas usage	NA
FY 1984-85	18,389,045,652	2.10%	453	Total energy cost up	26.30%
FY 1983-84	18,010,719,680	-0.98%	444		

HIGHLIGHTS

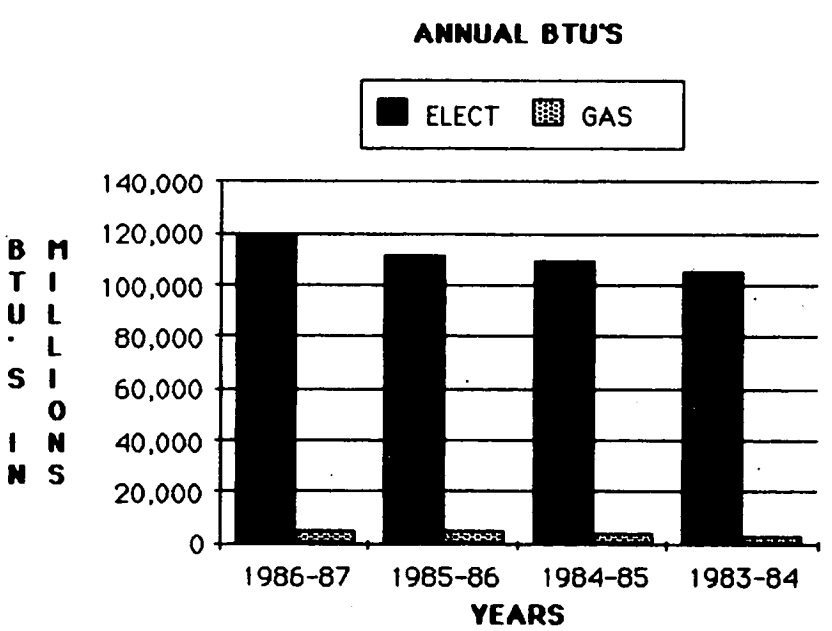
During this reporting period there were fourteen (14) new signalized intersections and seven (7) intersections traffic signals were modified to increase the number of signals at each station in the intersection.

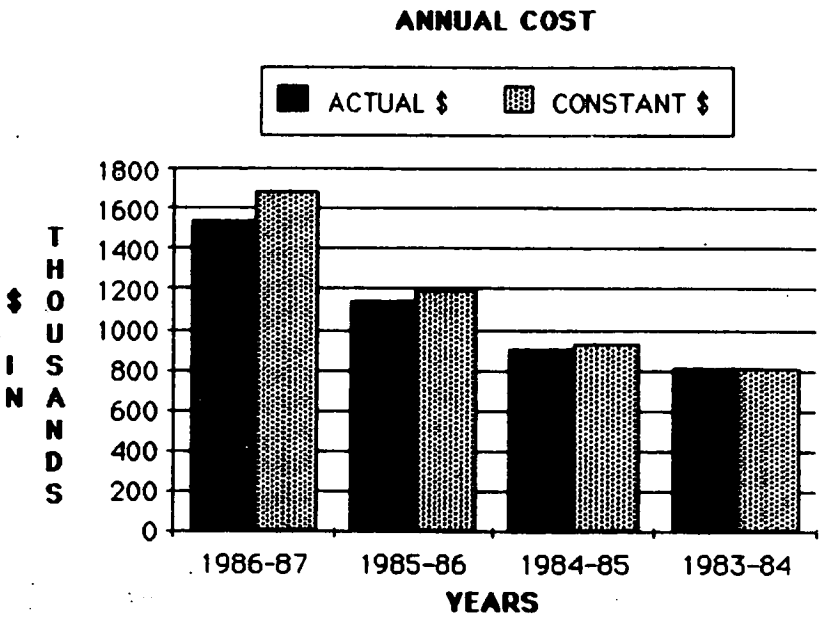
N. WATER DIVISION

ENERGY MITIGATION OVERVIEW
COMPARISON OF CURRENT YEAR
TO BASE YEAR UTILITY EXPENSES



N. WATER DIVISION





N. CONSUMPTION MEASUREMENTS

Period	Total BTU'S Billions	% Change	Billions Gallons Pumped Potable
FY 1986-87	125,984,380,004	7.60%	36.95
FY 1985-86	125,984,380,004	7.60%	34.60
FY 1984-85	117,083,350,288	2.54%	34.70
FY 1983-84	114,184,823,236	4.76%	32.80

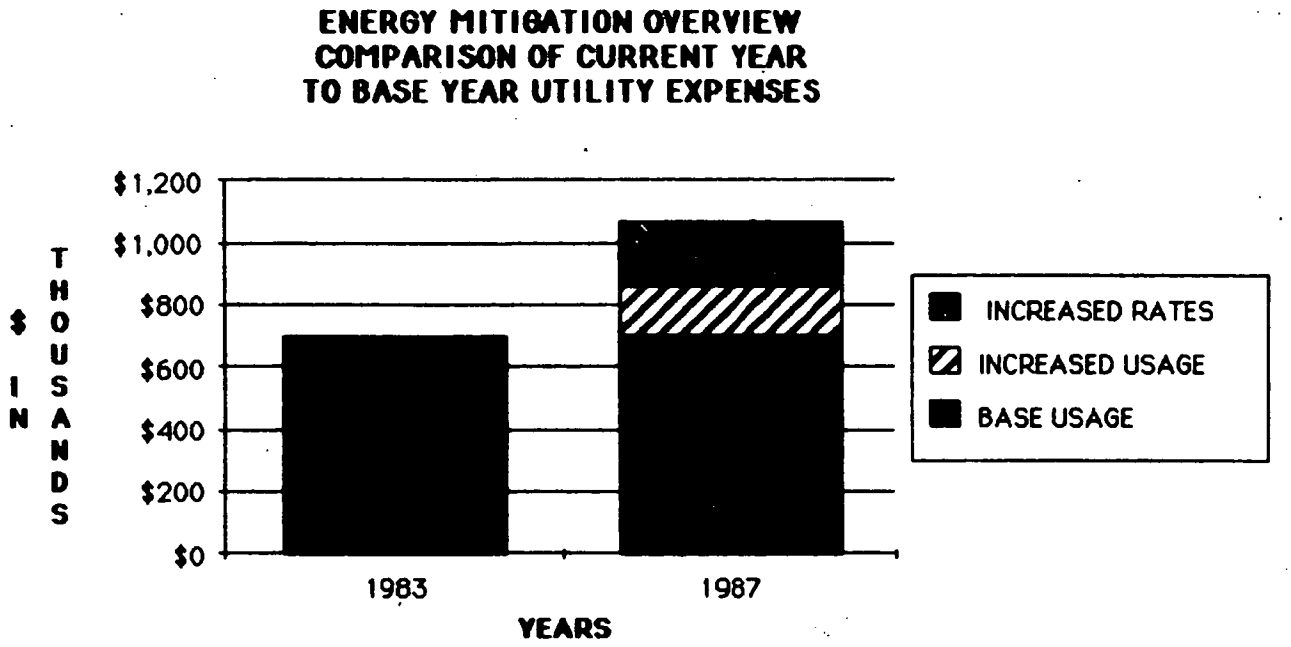
FY 1986-87 verses FY1985-86:

Electrical usage up	7.70%
Natural gas usage up	5.49%
Total energy cost up	35.14%

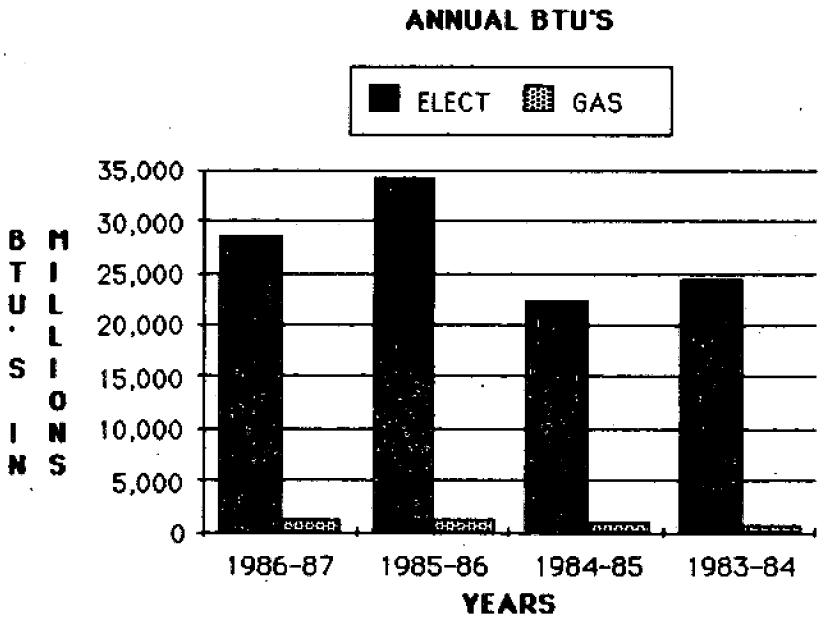
HIGHLIGHTS

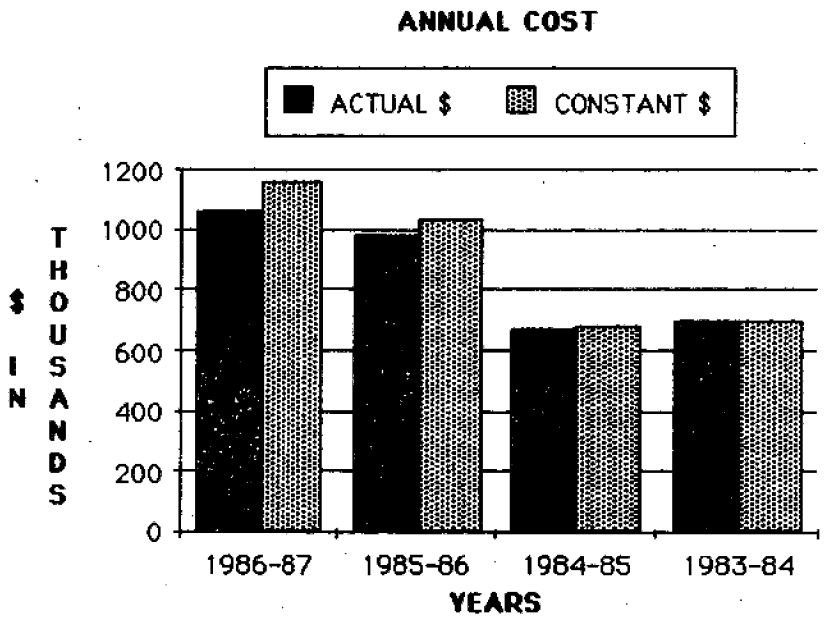
The water production increased 7.60% over last reporting period, which accounts for the 7.70% increase in electrical consumption. The increase in natural gas is attributed to the activation of the Riverside Water Treatment Plant, requiring controlled temperature for the clorinators, and hot water to clean the in plant lines.

O. FLOOD CONTROL AND SEWER DIVISION *



O. FLOOD CONTROL AND SEWER DIVISION





O. CONSUMPTION MEASUREMENTS

Period	Total BTU'S Billions	% Change	Billions Gallons pumped Waste Water	FY 1986-87 verses FY1985-86:	
FY 1986-87	29,993,380,688	-15.90%	9.08	Electrical usage down	-16.43%
FY 1985-86	35,665,349,128	50.83%	11.33	Natural gas usage down	-2.82%
FY 1984-85	23,645,967,136	-6.88%	9.98	Total energy cost up	8.30%
FY 1983-84	25,393,127,904	NA	8.81		

HIGHLIGHTS

During this reporting period, electrical and natural gas consumption was less than FY 85-86 due to the milder year, additionally, the Sacramento area had 13.2 inches less rainfall than during FY85-86, reducing the need for wastewater pumping.

IV. FLEET VEHICLE OPERATIONS

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IV. FLEET MANAGEMENT OPERATIONS

A. In FY 86/87 the City of Sacramento's vehicle usage increased by approximately 620,000 miles or 5.9%, while fuel consumption increased by approximately 50,000 gallons or 1.3%, compared to previous year. Significant improvements in vehicle fuel economy (miles per gallon) were seen throughout the fleet.

- Non-emergency passenger cars, reduced mileage by <98,000> miles or 5.5%. Fuel economy registered an 11% increase.
- The marked Police and Fire Departments' cars increased mileage utilization by 220,000 miles or 6.3%. Fuel economy in this group improved by 4%.
- City Pickups usage increased by 200,000 miles or 5.4% . This group's fuel economy improved by 5%.
- The Large Trucks usage also increased by 200,000 miles or 19% over previous years levels. The group also registered a dramatic 19% increase in its miles per gallon figure.
- The City's Refuse trucks utilization increased by 95,000 miles or 9.5%. This group's rate of fuel consumption remained at last year's levels.
- The Fire Department's trucks usage and rate of fuel consumption also remained at last year's levels..

B. This year's fuel economy improvements are due to a number of factors:

- Improvements in both the Police and Fire Departments' utilization of Compact Cars.
- The Non-emergency Passenger Car group the replacement of the older rear wheel drive cars with down sized front wheel drive cars.
- The new Dodge Aries and Ford Tempo cars get 30 to 40% better mileage than the cars which they replaced.
- Fleet Management has also replaced the Fire Department's Battalion Chiefs' older gasoline powered station wagons with diesel powered Suburbans.

C. An improved Preventive Maintenance program and an increase in training for the City's mechanics have also contributed to this year's improvement. The Fleet Management Division capitalized on the state's mandate smog program and upgraded its Preventive Maintenance program. Each of the City's cars and light trucks

must now be certified every other year. New test equipment and a higher level of mechanical training and awareness have enhanced the performance of the City's personnel and of these vehicles.

D. Fleet Management has also witnessed dramatic improvement in the fuel economy of its larger trucks. Three years ago, Fleet took delivery of the first of its small diesel powered trucks. Their fuel economy, durability,and overall economy have far exceeded exceeded Fleet Management's expectations. The fuel economy of these vehicles is generally at least 50% better than that of the gasoline powered trucks which they replaced. In FY 86/87, approximately 30 of the city's 156 large trucks were deisel powered.

E. Fleet Management is continuing to convert the fleet to radial tires. The total fleet should be completed within the next eighteen months. Fleet Management has also begun to convert its larger trucks, including the Refuse and Fire Trucks to tubeless radial tires. This conversion should also translate into a minor improvement in fuel economy.

F. On the down side, it is Fleet Management's goal to provide the user departments and divisions with the right (most efficient) vehicle for each job. Due to the users' load and passenger requirements, Fleet's ability to replace standar size pickup trucks with compact trucks has reached a saturation point. Fleet will continue to purchase the most efficient vehicle, that will meet the users need.

G. In addition, beginning in FY 86/87, all light trucks, compacts and standards, will be air conditioned. This is bound to have some negative impact on this group's fuel economy. It is estimated that these vehicles will lose one to two miles per gallon when the air conditioner is engaged. The new mechanical sideloader garbage packers will also be equipped with air conditioners. This will also result in some decrease in this group's fuel economy.

H. Fleet Management remains commited to improving the fleet's fuel economy. Sometimes progress and that commitment is difficult to define, and even more difficult to see. In the past five years, Sacramento has grown dramatically. There has been a tremendous increase in the demand for existing and new services. Total fleet mileage has increased by almost 3,000,000 miles since 1981. This represents a 30% increase in utilization. During this same period the City's over the road fleet has expanded from 972 vehicles to 1127 (up 16%). If fuel consumption had remained at the 1981 levels, the fleet would have consumed an additional 175,000 gallons of fuel in FY 86/87. This represents a cost avoidance of 13% of the fuel consumed during FY 86/87.

IV. FLEET VEHICLE OPERATIONS

FUEL CONSUMPTION AND COSTS

	GALLONS CONSUMED IN THOUSANDS			COST IN THOUSANDS			AVERAGE COST
YEAR	GAS	DIESEL	TOTAL	GAS	DIESEL	TOTAL	$/GAL.
1987	1055	521	1577	$631	$243	$874	$0.55
1986	1097	459	1556	$972	$326	$1,298	$0.83
1985	1081	452	1533	$1,052	$370	$1,422	$0.93
1984	1094	378	1473	$1,085	$327	$1,411	$0.96
1983	1141	329	1471	$1,132	$315	$1,448	$0.98
1982	1160	317	1478	$1,326	$320	$1,646	$1.11
1981	1263	264	1527	$1,540	$263	$1,806	$1.18

FY 1986-87 FUEL COST/GALLON

- Fuel prices hit an eight year low in summer FY 86-87 at an average of $.55 per gallon, (Gasoline $.60/Gal, Diesel $.47/Gal). However, since the beginning of FY87-88 fuel prices have started to increase, and are projected to reach FY 85-86 price levels.

HIGHLIGHTS

- The City of Sacramento's vehicle fuel consumption increased 1.3%, and vehicle usage increased by 620,000 miles or 5.4%.
- Since 1981 vehicle usage (miles driven) has increased 30.3%. Fuel consumption has increased only 3.3%.

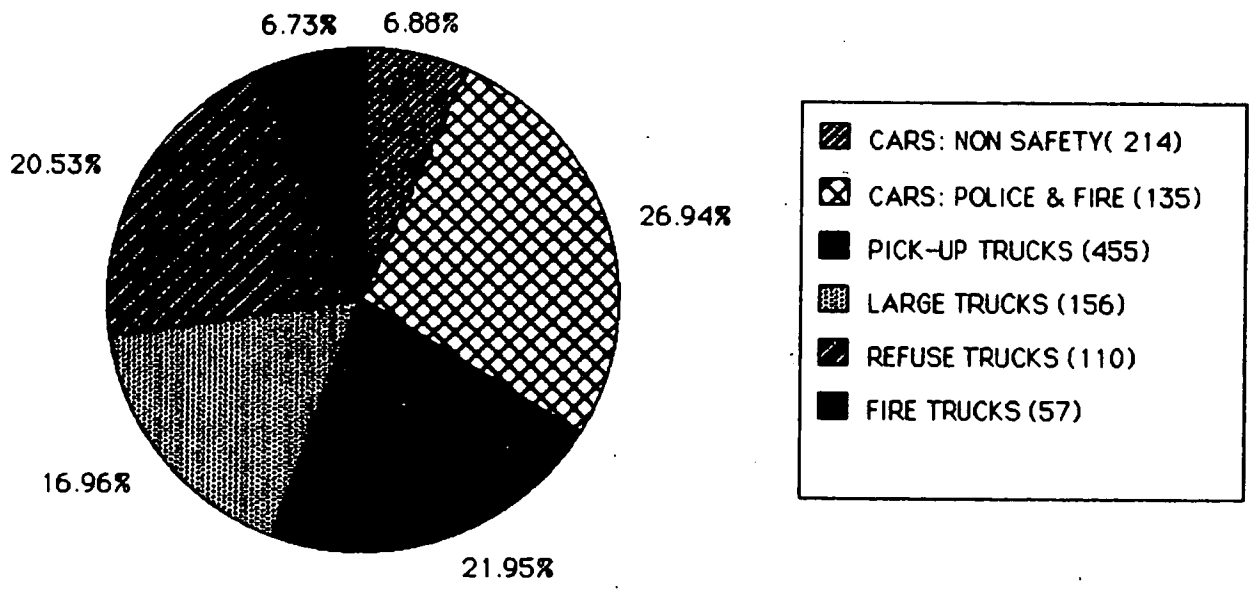
Summary of Vehicles Type,Fuel Consumption,Mileage

SUMMARY OF VEHICLES BY TYPE, CONSUMPTION, MILEAGE, AND MILES PER GALLON

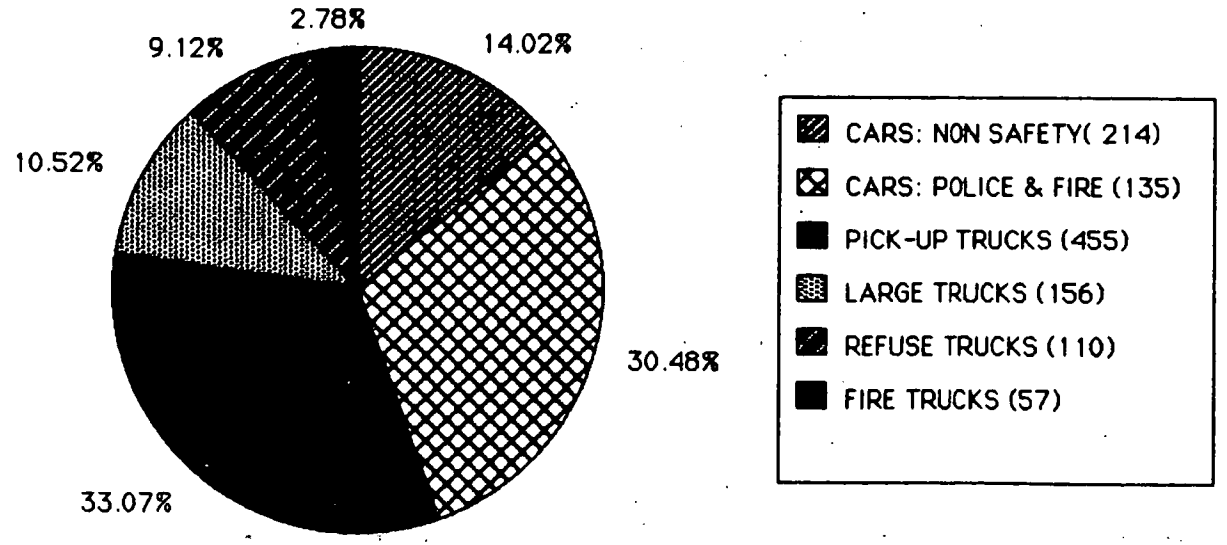
Type of Vehicle	No. of Vehicles				Gallons Used				Total Mileage				Miles/Gallons			
	83/84	84/85	85/86	86/87	83/84	84/85	85/86	86/87	83/84	84/85	85/86	86/87	83/84	84/85	85/86	86/87
Cars: Non-Safety																
Sub-compact	55	57	134	47	24,672	30,127	23,265	15,015	605,065	630,960	499,864	319,496	24.5	20.9	21.5	21.3
Compact	123	132	9	149	83,255	66,234	69,964	61,645	1,218,268	1,080,249	1,147,043	1,172,337	14.6	16.3	16.4	19.0
Intermiate	16	14	12	2	18,046	13,956	8,606	3,155	153,745	146,700	82,313	34,643	8.5	10.5	9.6	11.0
Standard	6	6		16	4,309	5,482	3,929	12,099	77,562	66,657	54,469	159,597	18.0	12.2	13.9	13.2
Sub-total:	200	209	155	214	130,282	115,799	105,764	91,914	2,054,660	1,924,566	1,783,689	1,686,073	15.8	16.6	16.9	18.3
Cars: Police & Fire																
Compact	4	4	6	5	2,759	5,091	7,902	6,349	36,905	66,596	98,026	109,045	13.4	13.1	12.4	17.2
Standard	122	116	135	130	321,494	325,282	346,500	353,363	3,179,321	3,105,360	3,348,162	3,555,998	9.9	9.5	9.7	10.1
Sub-total:	126 0	120	141	135	324,253	330,373	354,402	359,712	3,216,226	3,171,956	3,446,188	3,665,043	9.9	9.6	9.7	10.2
Pick-ups																
Sub-compact	135	185	226	248	70,390	80,256	97,169	112,035	1,433,210	1,654,572	1,900,175	2,199,097	20.4	20.6	19.6	19.6
Standard	215	201	204	207	183,826	189,839	196,285	181,033	1,851,751	1,823,054	1,872,848	1,777,123	10.1	9.6	9.5	9.8
Sub-total:	350	386	430	455	254,216	270,095	293,454	293,068	3,284,961	3,477,626	3,773,023	3,976,220	12.9	12.9	12.9	13.6
Trucks	181	166	164	156	219,473	234,155	226,357	226,510	1,034,899	1,070,615	1,061,970	1,264,461	4.7	4.6	4.7	5.6
Sub-total:	181	166	164	156	219,473	234,155	226,357	226,510	1,034,899	1,070,615	1,061,970	1,264,461	4.7	4.6	4.7	5.6
Refuse Trucks																
Gas	0	2	0	0	0	1,309	0	0	0	2,225	0	0	0.0	1.7	0.0	0.0
Diesel	101	108	111	110	235,857	221,589	251,023	274,175	852,916	894,298	1,001,261	1,096,501	3.6	4.0	4.0	4.0
Sub-total:	101	110	111	110	235,857	222,898	251,023	274,175	852,916	896,523	1,001,261	1,096,501	3.6	4.0	4.0	4.0
Fire Trucks																
Gas	30	29	26	26	35,102	41,203	48,151	41,008	129,194	156,573	155,207	135,994	3.7	3.8	3.2	3.3
Diesel	29	26	29	31	28,577	37,082	43,478	48,423	118,151	152,035	180,684	198,773	4.1	4.1	4.2	4.1
Sub-total:	59	55	55	57	63,679	78,285	91,629	89,431	247,345	308,608	335,891	334,767	3.9	3.9	3.7	3.7
TOTALS:	1,017	1,048	1,056	1,127	1,227,760	1,251,605	1,324,649	1,334,810	10,691,007	10,849,914	11,402,022	12,023,065	8.7	8.7	8.6	9.0

IV. FLEET VEHICLE OPERATIONS

FUEL CONSUMPTION

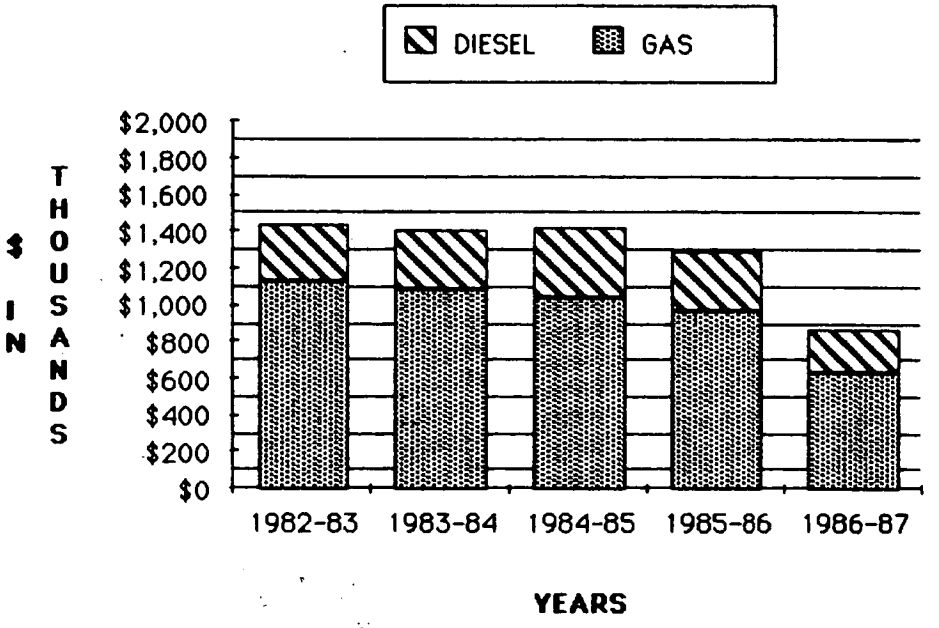


MILEAGE DRIVEN

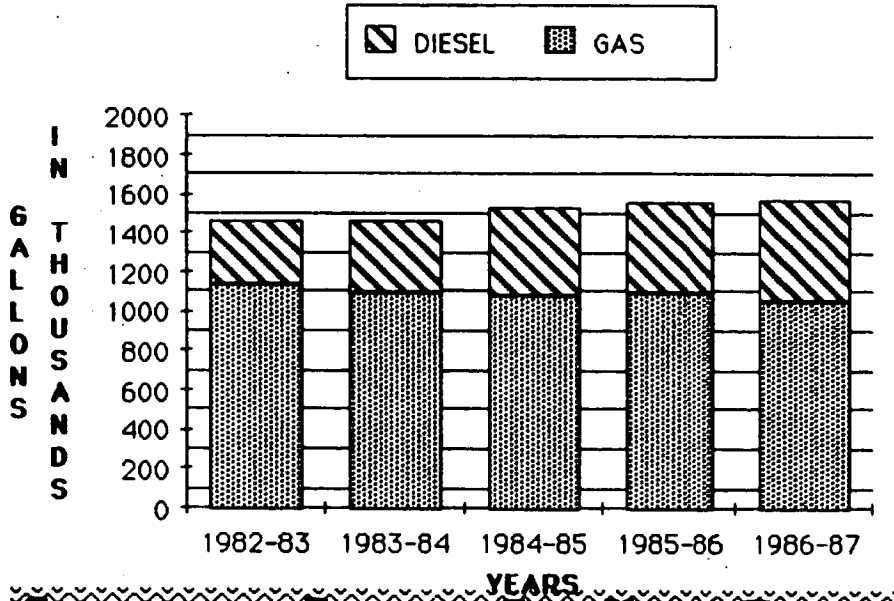


IV. FLEET VEHICLE OPERATIONS

TOTAL COST OF FUEL CONSUMED

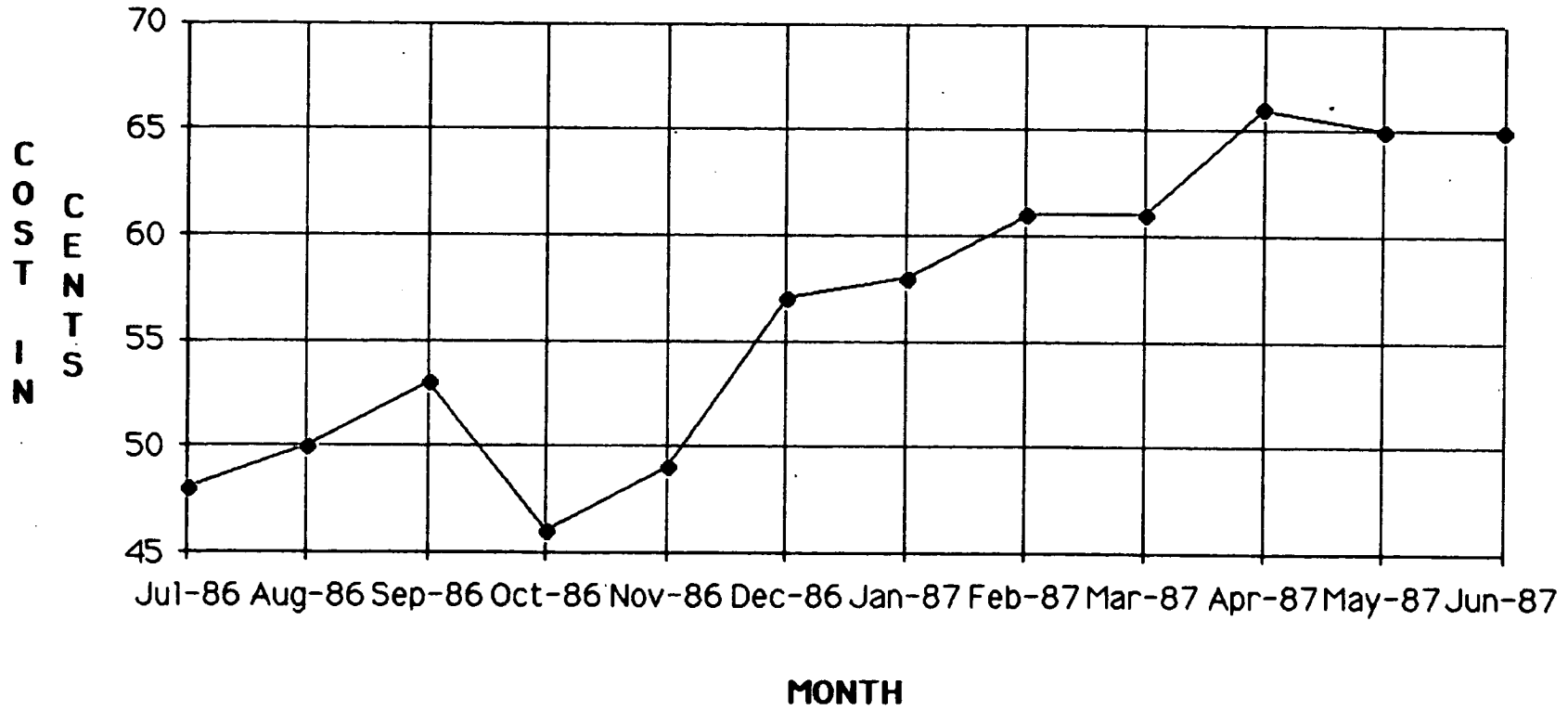


TOTAL GALLONS OF FUEL CONSUMED



IV. FLEET VEHICLE OPERATIONS

FUEL COST PER GALLON



V. ENERGY CONSERVATION ACTIVITIES

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A. ENERGY AUDITS

Energy use audits were conducted by SMUD at Parking Lots A,B,H,E & R in order to track current usage as compared to usage prior to lighting conversion. The results of this analysis is an annual savings of $114,387:

- Parking Lot A $6,696
- Parking Lot B $7,411
- Parking Lot H $54,710
- Parking Lot E $31,700
- Parking Lot R $13,870

TOTAL $114,387

B. GRANTS AND INCENTIVES

The City of Sacramento received a rebate from PG&E of $969.00 for energy conservation measures at the City Corporation Yard. This program and most all other incentive programs are being phased out .

C. ENERGY CONSERVATION PROJECTS

1. Parking Lots

Lot K, K1, & K2:
Lighting conversion has been completed with the exception of stairwell and ramp lights which will be completed soon. This will result in increased lighting as required by current codes, greater public safety, lower maintenance costs, lower lamp replacement costs, and reduced energy usage.

Estimated cost: $295,000 Payback period: 4.25 Years.

Savings: $69,346

In addition to the above, a generator was installed and integrated into the normal lighting system to provide emergency lighting during power outages in the underground parking facility. Funding other than lighting conversation project funding was provided for this public safety project.

Cost: $108,770

2. Parks and Community Services

a. Glenn Hall , Mangan, South Side & Cabrillo Swimming Pools:

All exterior incandescent lighting was replaced in order to provide sufficient lighting for normal operation, increased safety and greatly reduce maintenance costs.

Cost: ***$11,390***

b. Ball Diamonds Lighting Hagginwood, Johnston, Northgate & Redwood

Ball diamonds have been repeatedly vandalized, resulting in many fixtures being damaged beyond repair. Hagginwood Park was retrofitted from mercury vapor to a more energy efficient and vandal resistant HPS fixture, energy use was reduced **22%**.

Cost: Hagginwood ***$10,550***

Damaged fixtures at Johnston, Northgate and Redwood Parks have been repaired and vandal shields added to reduce costly repairs caused by vandalism.

Material and fabrication costs: ***$8,973.00*** Installation of vandal shields was performed by transportation personnel.

C. Nursery

New exterior HPS lighting was added to reduce vandalism of City equipment and property on the west and north side of the building.

Cost: ***$1,350.00*** ***2.5 year payback***

d. William Land Golf Clubhouse

Inefficient interior and exterior lighting was replaced in order to provide adequate lighting for public safety and reduce vandalism.

Cost: ***$1,437.00*** ***.56 year payback***

e. McClatchy Pool

One light standard was damaged beyond repair due to vandalism. The damaged standard as well as other exterior standards were retrofitted to HPS and measures were taken to reduce vandalism.

Cost: *$3,516.00*

3. **Landfill Equipment Maintenance Building and Corporation Yard Building 6 and 16**

Inefficient and obsolete gas space heaters were replaced with infra-red heaters at the City Land fill Equipment Maintenance Building and Corporation Yard building 6 & 16. The new heaters will provide superior heating and comfort while reducing natural gas consumption.

Cost: *$28,714.00* *Less than 24 months payback*

4. **Police Department Annex Squad Room**

Exterior lighting was replaced in order to provide safety for employees, reduce energy usage, and reduce maintenance costs.

Cost: *$602.00* *.8 year payback*

5. **Fire Station 13 &16**

Replaced inoperative and inefficient exterior lighting with HPS which provides increased lighting for security and employees safety.

Cost: *$1,177.00*

6. **H Street Underpass**

All interior lighting was replaced with a more efficient and longer lasting compact fluorescent. Vandal shields were also installed. Two HPS fixtures were added, one at each entrance and, the interior was painted to increase public safety.

Cost: *$950.00*

7. **Folsom Blvd. Underpass**

All six overhead lights which were vandalized were replaced with two low pressure sodium vandal resistant fixtures.

Cost: *$270.00*

D. UPCOMING PROJECTS

1. **Lot P**

Installation of 44 fixtures will complete the conversion from fluorescent to HPS lighting. This is a completion of a project started during FY 85-86. This will increase the lighting levels to comply with current code. (lighting will be increased approximately 51%), increased public safety , and reduced maintenance costs will also be realized. This project cost is estimated at *$36,165.00* and includes replacing 130 fixtures. The utility costs will increase *$933.12* per year, however, labor and maintenance costs will be reduced.

2. **Lot G**

Parking Lot G lighting conversion from Florescent to HPS is currently taking place and being completed by City hired limited term employees. This conversion was designed by the City Electrical Engineering Section. Preliminary construction estimates are *$63,230*, with an energy saving estimated to be *$ 8,175* per year.

3. **Fire Station #10 & #21**

Replace obsolete exterior lighting Fire Station #10 & #21. Review existing exterior lighting at remaining Fire Stations and correct as needed.

4. **Wood Park,** 6769 Bodine Circle

Replace all inefficient incandescent fixtures with new HPS fixtures which will provide greatly increased lighting for public safety.

5. **Bing Maloney**

Install four new HPS fixtures for new golf cart storage to deter vandalism.

6. **McKinley Park Garden/Arts Center**

Replace the majority of exterior lighting with HPS. This will discourage undesirable activity and provide greater public safety during evening events.

7. **Fire Station #9**

Fire Station #9 is currently being designed to convert the apparatus room from electric to natural gas. Station #6 & #12 will be converted later.

8. **McKinley Park Tiny Tot Center**
A dropped ceiling & new lighting fixtures will be installed. This will cause a decrease in heating costs and with the new lights a decrease in energy consumption. The exterior lighting will also be replaced which will reduce the undesirable activity during evening hour

9. **Johnston Ball Diamond**

Johnston Ball Diamond will be retrofitted from mercury vapor to a more energy efficient and vandal resistant HPS fixture.

E. ENERGY CONSERVATION PROJECT EXPENDITURES AND COMMITMENTS

1. General Government Energy Conservation Program C.C. DA26:

- Previously reported as of June 30, 1986 — *$341,989*
- Expenditures for FY 1986-87 (See Section C) — *$76,759*

Total Expenditures through June 30, 1987 — *$418,748*

- Projects in progress:
  - Complete PG&E audit recommendations for 24th Street Corporation Yard
- Schedule most effective (shortest payback on investment) energy conversion measures identified and estimated to cost in excess of $500,000 available funding for FY 1986-87. — *$180,000*

Total Commitments and Expenditures C.C. DA26 — *$598,748*

Note: Appropriations through June 30, 1987 *($612,329)*

2. Parking Lot Lighting Replacement Program C.C. DA41:

- Previously reported as of June 30, 1986 — *$231,801*
- Expenditures for FY 1986-87 (See Section C) — *$215,233*

Total Expenditures through June 30, 1987 — *$447,034*

- Projects in progress:
  - Conversion of Parking Lot K, K-1, & K-2. This will be completed in FY 1987-88 report. Cost to date: — *$200,000*

Total Commitments and Expenditures C.C. DA41 — *$647,034*

Note: Appropriations through June 30, 1987 *($596,765)*

VI. CONCLUSION

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VI. CONCLUSION

A. Recap

The overall energy consumption increase of 1.79% in 1986-87 was attributable to the following factors:

- Climatic conditions
- System expansion
- Increased water production for irrigation and domestic use
- Addition of new IBM mainframe and various peripheral equipment
- 63 new electrical accounts

Progress continued in reducing or maintaining energy usage levels in controllable areas. Notable successes were achieved in exterior lighting, with ongoing parking lot conversion programs reducing energy consumption through the phased use of high pressure sodium lights. Audit compliance action addressed a diverse group of energy improvements which were made at various City locations, ranging from relamping interior fluorescent lights to installing time clocks and insulation.

With regard to energy costs, SMUD rates continue to increase, as indicated ,since FY 85-86 the increases have totalled 57.9%, however, a slight decrease from PG&E was realized during this same period. The City also realized a fleet fuel cost avoidance of 13% during FY 1986-87 based on 1981 fuel consumption.

B. Focus for 1987-88

In 1987-88 , the Department of General Services will continue its efforts to mitigate spiraling energy costs through the implementation of energy conservation measures and practices, using the following methods:

- Applying common sense and creativity in identifying and implementing energy conservation measures.
- Seeking out and taking advantage of available energy audits, grants and incentives.
- Implementing life-cycle procurement practices (ie., vehicles, electrical, and mechanical).
- Encouraging use of common sense conservation practices by all City employees.
- Seeking out and testing new technologies to assist in cost avoidance, with emphasis on electronic control systems.

APPENDICES

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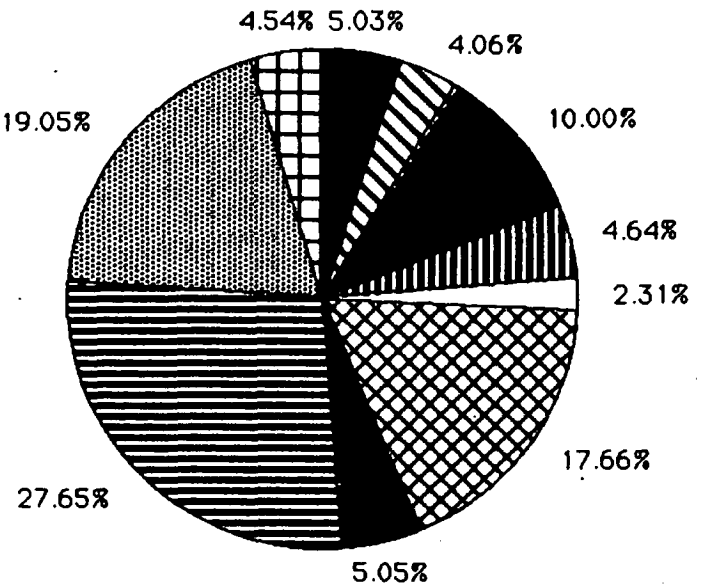
Appendices

A. Utility Cost by Function/Energy Cost by Type

B. Detail Charts of Energy Usage by Function

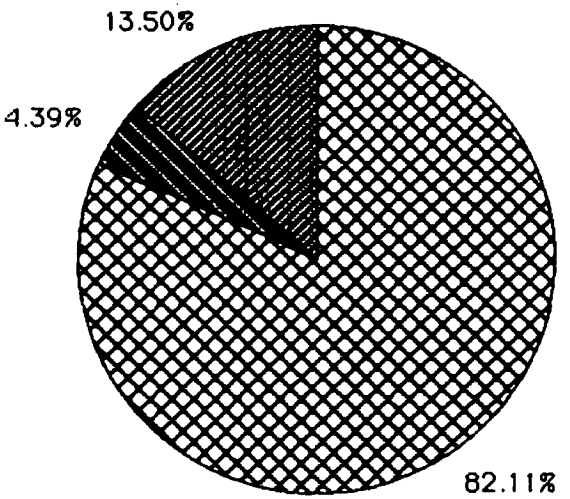
UTILITY COST BY FUNCTION



ELECTRICITY AND NATURAL GAS AS A % OF TOTAL UTILITY COST, $5,605,448

- COMMUNITY CTR
- OFC BLDG/CORP YD
- PKS & COMM SVC
- PARKING LOTS
- POLICE
- STREET LIGHTS
- TRAFFIC SIGNALS
- WATER
- FLD CONT & WASTE WTR
- OTHER

ENERGY COST BY TYPE



TOTAL COST OF ENERGY USED IS $6,480,048

- ELECTRIC
- NATURAL GAS
- FLEET FUEL

APPENDIX B

ACTIVITY: SUMMARY OF OPERATIONS

		ELECTRICITY				NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE
FY 1986-87	869	93,297,416	2.48%	$5,321,024	21.01%	95	503,638	-2.40%	$284,424	-9.55%
FY 1985-86	806	91,038,461	6.67%	$4,397,120	29.15%	95	516,022	-10.99%	$314,450	-18.07%
FY 1984-85	813	85,342,243	-1.59%	$3,404,585	6.39%	97	579,724	33.51%	$383,825	38.90%
FY 1983-84	791	86,724,663	NA	$3,199,968	NA	94	434,230	NA	$276,341	NA

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TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
318,330,783,392	50,363,800,000	368,694,583,392	1.79%	$5,605,448	*$6,109,938*
310,623,228,932	51,602,200,000	362,225,428,932	3.74%	$4,711,570	*$4,947,149*
291,187,733,116	57,972,400,000	349,160,133,116	2.90%	$3,788,410	*$3,864,178*
295,904,550,156	43,423,000,000	339,327,550,156	NA	$3,476,309	*$3,476,309*

ACTIVITY: ANIMAL CONTROL

		ELECTRICITY				NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE
FY 1986-87	1	90,727	-7.37%	$5,230	11.78%	1	3,929	12.77%	$2,223	8.81%
FY 1985-86	1	97,946	20.54%	$4,679	23.59%	1	3,484	-7.44%	$2,043	-15.05%
FY 1984-85	1	81,255	-15.67%	$3,786	6.68%	1	3,764	53.51%	$2,405	57.19%
FY 1983-84	1	96,359	NA	$3,549	NA	1	2,452	NA	$1,530	NA

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
309,560,524	392,900,000	702,460,524	2.91%	$7,453	*$8,124*
334,191,752	348,400,000	682,591,752	4.43%	$6,722	*$7,058*
277,242,060	376,400,000	653,642,060	13.88%	$6,191	*$6,315*
328,776,908	245,200,000	573,976,908	NA	$5,079	*$5,079*

APPENDIX B

ACTIVITY: COMMUNITY CENTER

	ELECTRICITY					NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE*
FY 1986-87	3	4,208,731	5.82%	$225,300	24.58%	2	100,124	8.59%	$56,676	4.03%
FY 1985-86	3	3,977,284	8.39%	$180,843	19.94%	3	92,204	-11.49%	$54,478	-17.84%
FY 1984-85	2	3,669,415	-1.85%	$150,775	14.11%	3	104,177	13.62%	$66,306	15.20%
FY 1983-84	2	3,738,549	NA	$132,137	NA	3	91,692	NA	$57,555	NA

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
14,360,190,172	10,012,400,000	24,372,590,172	6.94%	$281,976	*$307,354*
13,570,493,008	9,220,400,000	22,790,893,008	-0.64%	$235,321	*$247,087*
12,520,043,980	10,417,700,000	22,937,743,980	4.62%	$217,081	*$221,423*
12,755,929,188	9,169,200,000	21,925,129,188	NA	$189,692	*$190,692*

ACTIVITY: DATA PROCESSING

	ELECTRICITY					NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE*
FY 1986-87	1	926,607	24.48%	$40,491	51.61%	1	676	-19.71%	$383	-24.31%
FY 1985-86	1	744,410	8.99%	$26,708	33.98%	1	842	-50.24%	$506	-53.23%
FY 1984-85	1	683,028	6.67%	$19,934	12.03%	1	1,692	81.35%	$1,082	86.55%
FY 1983-84	1	640,322	NA	$17,793	NA	1	933	NA	$580	NA

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
3,161,583,084	67,600,000	3,229,183,084	23.06%	$40,874	*$44,553*
2,539,926,920	84,200,000	2,624,126,920	4.98%	$27,214	*$28,575*
2,330,491,536	169,200,000	2,499,691,536	9.73%	$21,016	*$21,436*
2,184,778,664	93,300,000	2,278,078,664	NA	$18,373	*$18,573*

APPENDIX B

ACTIVITY: FIRE DEPARTMENT

	ELECTRICITY					NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE*
FY 1986-87	27	1,329,050	4.29%	$83,860	22.73%	24	57,141	1.10%	$32,095	7.00%
FY 1985-86	26	1,274,336	5.71%	$68,329	26.90%	23	56,521	-5.05%	$29,995	-32.49%
FY 1984-85	26	1,205,503	17.69%	$53,844	25.82%	23	59,525	22.19%	$44,430	37.00%
FY 1983-84	23	1,022,596	NA	$42,795	NA	20	48,714	NA	$32,430	NA

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
4,534,718,600	5,714,100,000	10,248,818,600	2.49%	$115,955	*$126,391*
4,348,034,432	5,652,100,000	10,000,134,432	-0.65%	$98,324	*$103,240*
4,113,176,236	5,952,500,000	10,065,676,236	20.40%	$98,274	*$100,239*
3,489,097,552	4,871,400,000	8,360,497,552	NA	$75,225	*$75,225*

ACTIVITY: LIBRARY DEPARTMENT

	ELECTRICITY					NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE*
FY 1986-87	10	748,333	-8.02%	$48,071	13.35%	8	21,826	25.09%	$12,353	17.86%
FY 1985-86	11	813,594	-0.70%	$42,408	15.60%	8	17,448	-33.57%	$10,481	-37.58%
FY 1984-85	11	819,326	2.47%	$36,685	6.50%	9	26,266	29.50%	$16,791	32.49%
FY 1983-84	11	799,542	NA	$34,445	NA	9	20,282	NA	$12,673	NA

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
2,553,312,196	2,182,600,000	4,735,912,196	4.76%	$60,424	*$65,862*
2,775,982,728	1,744,800,000	4,520,782,728	-16.62%	$52,889	*$55,533*
2,795,540,312	2,626,600,000	5,422,140,312	14.00%	$53,476	*$54,546*
2,728,037,304	2,028,200,000	4,756,237,304	NA	$47,118	*$47,118*

APPENDIX B

ACTIVITY: OFFICE BUILDINGS AND 24TH STREET CORPORATION YARD

	ELECTRICITY					NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE*
FY 1986-87	6	3,158,395	-1.06%	$167,771	18.30%	7	105,810	-13.31%	$59,883	-28.82%
FY 1985-86	5	3,192,329	76.59%	$141,821	100.84%	7	122,049	-25.37%	$84,133	-14.95%
FY 1984-85	5	1,807,808	-1.10%	$70,615	9.84%	6	163,528	58.91%	$98,921	53.55%
FY 1983-84	4	1,827,928	NA	$64,268	NA	6	102,908	NA	$64,422	NA

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
10,776,443,740	10,581,000,000	21,357,443,740	-7.53%	$227,654	*$248,143*
10,892,226,548	12,204,900,000	23,097,126,548	2.56%	$225,954	*$237,252*
6,168,240,896	16,352,800,000	22,521,040,896	36.26%	$169,536	*$172,927*
6,238,890,336	10,290,800,000	16,527,690,336	NA	$128,710	*$128,710*

ACTIVITY: PARKING LOTS

	ELECTRICITY					NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE*
FY 1986-87	17	5,330,879	-8.81%	$260,117	9.27%	4	176	282.61%	$78	188.89%
FY 1985-86	15	5,845,836	-12.52%	$238,043	8.14%	1	46	-77.67%	$27	-79.70%
FY 1984-85	14	6,682,738	-16.02%	$220,126	-4.05%	1	206	255.17%	$133	269.44%
FY 1983-84	16	7,957,664	NA	$229,415	NA	2	58	NA	$36	NA

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
18,188,959,148	17,600,000	18,206,559,148	-8.74%	$260,195	*$283,613*
19,945,992,432	4,600,000	19,950,592,432	-12.58%	$238,070	*$249,974*
22,801,502,056	20,600,000	22,822,102,056	-15.96%	$220,259	*$224,664*
27,151,549,568	5,800,000	27,157,349,568	NA	$229,451	*$229,451*

ACTIVITY: PARKS AND COMMUNITY SERVICES

	ELECTRICITY					NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE*
FY 1986-87	233	6,751,822	3.01%	$496,039	23.74%	30	115,010	-10.52%	$64,725	-13.90%
FY 1985-86	207	6,554,737	11.97%	$400,876	25.09%	30	128,536	-4.01%	$75,173	-23.60%
FY 1984-85	228	5,853,755	0.99%	$320,478	9.22%	31	133,899	29.35%	$98,504	47.49%
FY 1983-84	229	5,796,115	NA	$293,411	NA	32	103,520	NA	$66,788	NA

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
23,037,216,664	11,501,000,000	34,538,216,664	-1.93%	$560,764	*$611,233*
22,364,762,644	12,853,600,000	35,218,362,644	5.56%	$476,049	*$499,851*
19,973,012,060	13,389,900,000	33,362,912,060	10.74%	$418,982	*$427,362*
19,776,344,380	10,352,000,000	30,128,344,380	NA	$360,199	*$360,199*

ACTIVITY: POLICE DEPARTMENT

	ELECTRICITY					NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE*
FY 1986-87	5	2,550,453	1.47%	$119,192	23.59%	3	18,086	-8.22%	$10,239	-13.96%
FY 1985-86	7	2,513,415	3.61%	$96,445	22.85%	5	19,706	14.98%	$11,900	10.01%
FY 1984-85	7	2,425,765	4.02%	$78,504	6.17%	5	17,139	50.69%	$10,817	41.53%
FY 1983-84	6	2,332,104	NA	$73,940	NA	4	11,374	NA	$7,643	NA

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
8,702,145,636	1,808,600,000	10,510,745,636	-0.34%	$129,431	*$141,080*
8,575,771,980	1,970,600,000	10,546,371,980	5.56%	$108,345	*$113,762*
8,276,710,180	1,713,900,000	9,990,610,180	9.85%	$89,321	*$91,107*
7,957,138,848	1,137,400,000	9,094,538,848	NA	$81,583	*$81,583*

ACTIVITY: SOLID WASTE

		ELECTRICITY				NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE*
FY 1986-87	12	322,600	-11.18%	$21,715	-0.89%	2	14,291	30.07%	$8,088	18.91%
FY 1985-86	11	363,195	15.96%	$21,911	37.04%	2	10,987	-24.49%	$6,802	-26.83%
FY 1984-85	10	313,210	3.39%	$15,989	21.90%	2	14,550	9.70%	$9,296	12.41%
FY 1983-84	9	302,935	NA	$13,116	NA	2	13,264	NA	$8,270	NA

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
1,100,711,200	1,429,100,000	2,529,811,200	8.21%	$29,803	*$32,485*
1,239,221,340	1,098,700,000	2,337,921,340	-7.36%	$28,713	*$30,149*
1,068,672,520	1,455,000,000	2,523,672,520	6.93%	$25,285	*$25,791*
1,033,614,220	1,326,400,000	2,360,014,220	NA	$21,386	*$21,386*

ACTIVITY: STREET LIGHTING

		ELECTRICITY				NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE*
FY 1986-87	12	18,229,218	5.15%	$990,098	15.54%	NA	NA	NA	NA	NA
FY 1985-86	11	17,337,137	-1.64%	$856,915	21.52%	NA	NA	NA	NA	NA
FY 1984-85	12	17,626,338	-5.69%	$705,142	9.53%	NA	NA	NA	NA	NA
FY 1983-84	7	18,689,524	NA	$643,795	NA	NA	NA	NA	NA	NA

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
62,198,091,816	0	62,198,091,816	5.15%	$990,098	*$1,070,207*
59,154,311,444	0	59,154,311,444	-1.64%	$856,915	*$899,781*
60,141,065,256	0	60,141,065,256	-5.69%	$705,142	*$719,245*
63,768,655,888	0	63,768,655,888	NA	$643,795	*$643,795*

APPENDIX B

ACTIVITY: TRAFFIC SIGNALS

	ELECTRICITY					NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE*
FY 1986-87	351	5,887,160	8.27%	$283,107	26.30%	NA	NA	NA	NA	NA
FY 1985-86	337	5,437,724	0.89%	$224,153	25.85%	NA	NA	NA	NA	NA
FY 1984-85	327	5,389,521	2.10%	$178,117	9.17%	NA	NA	NA	NA	NA
FY 1983-84	322	5,278,640	NA	$163,159	NA	NA	NA	NA	NA	NA

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
20,086,989,920	0	20,086,989,920	8.27%	$283,107	*$308,587*
18,553,514,288	0	18,553,514,288	0.89%	$224,153	*$235,361*
18,389,045,652	0	18,389,045,652	2.10%	$178,117	*$181,679*
18,010,719,680	0	18,010,719,680	NA	$163,159	*$163,159*

ACTIVITY: WATER DIVISION

	ELECTRICITY					NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE*
FY 1986-87	58	35,368,517	7.70%	$1,519,861	36.16%	10	53,070	5.49%	$30,041	-1.96%
FY 1985-86	50	32,840,724	2.05%	$1,116,265	26.17%	11	50,308	14.71%	$30,643	9.29%
FY 1984-85	49	32,180,253	3.61%	$884,757	11.80%	12	43,858	45.03%	$28,039	47.93%
FY 1983-84	46	31,057,793	NA	$791,362	NA	11	30,240	NA	$18,954	NA

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
120,677,380,004	5,307,000,000	125,984,380,004	7.60%	$1,549,902	*$1,680,393*
112,052,550,288	5,030,800,000	117,083,350,288	2.54%	$1,146,908	*$1,204,253*
109,799,023,236	4,385,800,000	114,184,823,236	4.76%	$912,796	*$931,052*
105,969,189,716	3,024,000,000	108,993,189,716	NA	$810,316	*$810,316*

APPENDIX B

ACTIVITY: FLOOD CONTROL AND SEWER DIVISION

	ELECTRICITY					NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE*
FY 1986-87	133	8,394,924	-16.43%	$1,060,172	8.43%	3	13,499	-2.82%	$7,640	-7.61%
FY 1985-86	121	10,045,794	52.11%	$977,724	46.84%	3	13,891	24.92%	$8,269	16.45%
FY 1984-85	120	6,604,328	-8.08%	$665,833	-4.44%	3	11,120	26.46%	$7,101	30.05%
FY 1983-84	114	7,184,592	NA	$696,763	NA	3	8,793	NA	$5,460	NA

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU'S	PERCENT CHANGE	TOTAL COST	*CONSTANT $ COST*
28,643,480,688	1,349,900,000	29,993,380,688	-15.90%	$1,067,812	*$1,163,915*
34,276,249,128	1,389,100,000	35,665,349,128	50.83%	$985,993	*$1,035,293*
22,533,967,136	1,112,000,000	23,645,967,136	-6.88%	$672,934	*$686,393*
24,513,827,904	879,300,000	25,393,127,904	NA	$702,223	*$702,223*