

# City of Alexandria, Virginia

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## MEMORANDUM CORRECTED

DATE: MARCH 31, 2006

TO: THE HONORABLE MAYOR AND MEMBERS OF CITY COUNCIL

FROM: JAMES K. HARTMANN, CITY MANAGER

SUBJECT: BUDGET MEMO#43: ENERGY CONSERVATION PROJECT PAYBACK

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This memorandum is in response to Councilman Krupicka's question regarding current and potential payback from energy conservation projects.

**Completed Projects, Projects Underway:** The table below represents a brief summary of completed energy conservation projects from FY 2003 to-date and includes yearly, cumulative, and total energy cost savings.

Project, Scope	Project Cost	FY 03 Actual Savings	FY 04 Actual Savings	FY 05 Actual Savings	FY06 Savings Estimate	Projected Savings Through FY06
<b>Fire Station 203:</b> Retro-fit with energy-efficient lighting fixtures	\$13,500	\$908	\$883	\$900	\$900	\$3,591
<b>Fire Station 205:</b> Retro-fit with energy-efficient lighting fixtures	\$14,600	\$687	\$679	\$400	\$400	\$2,166
<b>Beatley Library:</b> HVAC modifications	\$3,000			\$20,000	\$35,000	\$55,000
<b>Community Shelter:</b> HVAC replacement	\$5,200				\$3,000	\$3,000
<b>Torpedo Factory:</b> HVAC replacement	\$9,000				\$5,000	\$5,000
Yearly Sub-total Savings	\$45,300	\$1,595	\$1,562	\$21,300	\$44,300	
<b>TOTAL</b>						<b>\$68,757</b>

The industry target for cost savings of energy conservation measures is approximately seven years. The projects listed in the table above are an exception to the industry standard as the work scope contained elements easily identified for potential energy conservation.

**Projects in Planning & Prospective Energy Conservation Projects:** The Department of General Services has a number of capital improvement projects in development in which potential energy conservation elements have been identified. It should be noted that while the estimated payback in total slightly exceeds the seven year target, there will be long term benefits from these improvements. In addition, some of these improvements are required as part of planned life-cycle equipment replacement, therefore requiring an entire system replacement:

<u>Project, Scope</u>	<u>Estimated Project Cost</u>	<u>Energy Savings/yr</u>	<u>Payback</u>	<u>Notes</u>
<b>Beatley Library:</b> Piping Modification	\$35,000	\$20,000	2 years	This re-work will allow more downtime for system.
<b>City Hall:</b> Heating Plant replacement	\$40,000	\$4,000	10 years	This system is at the end of its useful life (25yrs). The replacement will pay for itself over time
<b>Courthouse:</b> Cooling tower replacement	\$100,000	\$35,000	Life Cycle replacement	Three part project Life-cycle replacement total costs are approximately \$550k with an estimated a annual savings of \$66k.
<b>Courthouse:</b> VAV Box replacement	\$250,000	\$6,000	Life cycle replacement	
<b>Courthouse:</b> Energy Management System replacement	\$200,000	\$25,000	8 years & Life Cycle replacement	
<b>Gadsby's Tavern:</b> Air Handler Replacement	\$50,000	\$1,000	Life Cycle replacement	Another multi part life-cycle project estimated at 170k Savings of approx. 8k per yr.
<b>Gadsby's Tavern:</b> Heating Plant replacement	\$50,000	\$4,000	12 years	
<b>Gadsby's Tavern:</b> Cooling Plant replacement	\$70,000	\$3,000	Life cycle replacement	
<b>Health Department:</b> Variable Air Volume (VAV) Box replacement	\$130,000	\$7,000	20 years Life Cycle replacement	Life cycle payback
<b>Public Safety Center:</b> Cooling Tower replacement	\$120,000	\$4,000	Life Cycle replacement	Life-cycle (30 yr) payback
<b>Various Facilities:</b> Programmable Thermostat installation	\$500-\$3000 per building	\$30,000	(varies)	\$30,000 is estimate total for all other facilities.
Sub-Total	\$1,045,500			
<b>Grand Total Annual Savings (estimated)</b>		<b>\$139,000</b>		

The majority of cost savings are achieved through lower operating costs. Less energy and resource commodities are consumed, resulting in lower utility bills when compared to conventional physical plants and infrastructure that do not incorporate environmentally-friendly specifications. Programmable thermostats would be used in facilities where installation of a full Energy Management System would not be cost-effective; for example, MH/MR/SA assisted living facilities, smaller recreation and historic facilities, and fire stations.